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TRANSACTIONS
OF THE
INDIANA
HORTICULTURAL SOCIETY
1877.

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TRANSACTIONS

OF THE

Indiana Horticultural Society

FOR 1877,

BEING THE

Proceedings of the Seventeenth Annual Session,

HELD AT

PURDUE UNIVERSITY, LAFAYETTE,

December 18th, 19th and 20th, 1877,

WITH REPORTS AND PROCEEDINGS OF

LOCAL HORTICULTURAL SOCIETIES,

EMBRACING ESSAYS, ADDRESSES, REPORTS, AND DISCUSSIONS ON VARIOUS SUBJECTS PERTAINING TO PRACTICAL AND SCIENTIFIC HORTICULTURE.

By W. H. RAGAN, Secretary.

INDIANAPOLIS:
INDIANAPOLIS JOURNAL COMPANY, STATE PRINTERS.
1878.

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STATE OF INDIANA, EXECUTIVE DEPARTMENT.

Received January 28, 1878, and referred to the Auditor of State for verification of the financial statements. Returned certified as follows:

Examined by the Governor and transmitted to the Secretary of State to be filed and preserved in his office, and published as may be ordered by the Commissioners of the Public Printing and Binding.

SAMUEL R. DOWNEY,
Secretary, Governor's Office.

OFFICE OF AUDITOR OF STATE,
February 4, 1878.

For the appropriation of three hundred dollars a warrant was issued to Sylvester Johnson, President of the Society, in accordance with the requirements of the appropriation act of 1877. This is all the knowledge this office has of the financial transactions of this Society.

E. HENDERSON,
Auditor of State.

Filed in my office February 4, 1878.

JOHN E. NEFF,
Secretary of State.

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CLAYTON, IND., December 31, 1877.

TO HIS EXCELLENCY,

GOVERNOR JAMES D. WILLIAMS:

In compliance with the special act of the Legislature, approved March 10, 1875, under which the Indiana Horticultural Society is incorporated, we have the honor to present the following, being the seventeenth annual report of said Society, with the accompanying requisition for the publication thereof.

Very respectfully,

SYLVESTER JOHNSON,

President.

W. H. RAGAN,

Secretary.

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OFFICERS FOR 1877 AND 1878.

PRESIDENT.

SYLVESTER JOHNSON, Irvington, Marion County.

VICE PRESIDENTS.

1st. JOSEPH M. BULLA, Richmond, Wayne County.
2d. L. B. CUSTER, Logansport, Cass County.
3d. F. H. FOUST, Columbia City, Whitley County.
4th. OLIVER ALBERTSON, Bridgeport, Marion County.

SECRETARY.

W. H. RAGAN, Clayton, Hendricks County.

TREASURER.

DANIEL COX, Cartersburg, Hendricks County.

EXECUTIVE COMMITTEE.

J. C. RATLIFF, Richmond, Wayne County.
DR. ALLEN FURNAS, Danville, Hendricks County.
D. E. HOFFMAN, Winchester, Randolph County.

STATE FRUIT COMMITTEE.

1st Dis.—F. M. POLK, Tobinsport, Perry County.
2d. " G. W. REGISTER, Paxton, Sullivan County.
3d. " F. C. JOHNSON, New Albany, Floyd County.
4th. " T. W. W. SUNMAN, Spades, Ripley County.
5th. " J. C. RATLIFF, Richmond, Wayne County.
6th. " BENAJAH PARKER, Raysville, Henry County.
7th. Dis.—JNO. W. RAGAN, Fillmore, Putnam County.
8th. " JOSEPH GILBERT, Terre Haute, Vigo County.
9th. " J. N. ARMANTROUT, Frankfort, Clinton County.
10th. " THEO. A. PEFFER, South Bend, St. Joseph County.
11th. " L. B. CUSTER, Logansport, Cass County.
12th. " I. D. G. NELSON, Fort Wayne, Allen County.
13th Dis.—F. M. BUKER, Ligonier, Noble County.

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ARTICLES OF ASSOCIATION

OF THE

INDIANA HORTICULTURAL SOCIETY.

The undersigned, officers of Indiana Horticultural Society, for the purpose of a more thorough and perfect organization, have this twenty-second day of December, 1875, agreed upon the following Articles of Association, (and the subjoined seal), under which to incorporate the society, pursuant to the provisions of an act of the General Assembly of the State of Indiana, approved March 10, 1875:

ARTICLE I. This organization shall be known as the Indiana Horticultural Society.

ARTICLE II. The objects of the society are to develop facts and promulgate information pertaining to the science of horticulture.

ARTICLE III. Its officers shall consist of a President, four Vice-Presidents, Secretary, Treasurer, and Executive Committee of three.

ARTICLE IV. Its members shall consist of annual members paying a fee of one dollar per annum into the treasury of the society, and honorary members who shall be elected by the society for merit as horticulturists of distinction, who may, at pleasure, participate in the deliberations of the Society. Members' wives will be members without fee.

ARTICLE V. Each member shall be entitled to a copy of the transactions of the society as often as the same shall be published.

ARTICLE VI. The Treasurer shall not disburse money except on the order of the Secretary, countersigned by the President.

ARTICLE VII. The Executive Committee shall require of the Treasurer such security as may be deemed sufficient for the safe keeping of the funds of the society.

ARTICLE VIII. The seal of the society shall consist of an outer rim embracing the inscription, "Indiana Horticultural Society;" within this, and above the central figure, consisting of a vase of flowers, a pear and apple resting upon a section of vine with its fruit, the word "Organized 1860;" below, "Incorporated 1875."

JOS. GILBERT,
President.

S. JOHNSON,
J. A. MEDENHALL,
OLIVER ALBERTSON,
WM. CARMICHAEL,
Vice-Presidents.

[SEAL]

W. H. RAGAN,
Secretary.

CHAS. LOWDER,
Treasurer.

H. D. SCOTT,
J. C. RATLIFF,
A. FURNAS,
Executive Committee.

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CONSTITUTION

OF THE

INDIANA HORTICULTURAL SOCIETY.

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1. This society shall be known as "INDIANA HORTICULTURAL SOCIETY."

2. Its officers shall consist of a President, four Vice-Presidents, Secretary, Treasurer, and Executive Committee of three.

3. The President shall preside at and conduct all meetings of the society, and in his absence the Vice-Presidents, in their order, shall perform the same duties.

4. The Secretary shall record all the doings of the society, collate and prepare all communications, etc., for the public press, and pay over all money received from members, or otherwise, to the Treasurer, on his receipt; shall receive and answer all communications addressed to the society; establish and maintain correspondence with all local, county, district, and State Horticultural Societies, and secure by exchange their transactions, as far as possible, to aid the President, as an executive officer, in the dispatch of business relating to meetings of the society; prepare and publish circulars and notices of horticultural and similar meetings of general interest, and report to the annual meeting of the society an abstract of the matter that has come into his possession, which, with its approval, shall become part of its transactions of the current year.

5. The Treasurer shall collect and hold all funds of the society, and pay out the same only on the order of the Secretary, countersigned by the President.

6. The officers shall be elected separately and annually by a ballot vote, and hold their offices until their successors are elected.

7. The objects of the society being to collect, condense and collate information relative to all varieties of fruits and dispense the same among the people, every member shall pay into the treasury one dollar a year for the purpose of publishing and other expenses. Any person interested in horticulture may become a member by forwarding to the Treasurer or Secretary the fee of membership.

8. Every member shall be entitled to a copy of the transactions of the society as often as the same shall be published.

9. The President, Secretary and Executive Committee may call a meeting of the society at any time and place they may consider advisable, by a notice of thirty days in the public press.

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10. The President, at each annual meeting of the society, shall appoint a general fruit committee, consisting of one member from each Congressional District in the State, and it shall be the duty of each member to report upon the fruit crop in his respective district, and it shall be the duty of said committee to report annually a limited list of fruits best adapted to general cultivation for the State at large, and also lists adapted for cultivation north and south of the National road.

11. This society shall hold its annual sessions on the third Tuesday in December in each year, and at such place as the society shall designate at its previous meeting. It shall be the duty of the Executive Committee to procure rooms and make all necessary arrangements for the holding of the meetings of the society, to make out a programme of business for each meeting, and attend to such other duties as the Society may from time to time direct.

12. The officers of this Society, together with the Fruit Committee, shall constitute a Board of Horticulture, five of whom shall constitute a quorum for the transaction of business, the officers of the Society to be officers of the Board, said Board to meet immediately on the adjournment of the Society, and afterwards on their own adjournment. It shall be the duty of the Board of Horticulture to collect horticultural information, and they shall be authorized to employ an agent or agents to visit different portions of our State or adjoining States to collect horticultural information of general interest, and shall be authorized to draw on the Treasurer for money to pay the expense of said agent or agents, when there is money in the treasury not otherwise needed, and said Board shall make full and definite reports of all their proceedings, with all horticultural information collected, to the regular meeting of the Society.

13. By-laws and alterations in the constitution, for the purpose of governing further wants of the Society, may be enacted by a majority of the members present at any regular session.

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STATE LAWS AFFECTING HORTICULTURE.

AN ACT providing for the incorporation of State, District and County Horticultural Associations.

[APPROVED MARCH 10TH, 1875.]

SECTION 1. *Be it enacted by the General Assembly of the State of Indiana*, That associations of persons for horticultural purposes, whether State, District or County Associations, may become incorporated in the manner following: An association of persons, known as a State Horticultural Society, may become incorporated by depositing in the office of the Secretary of State, a certified copy of the articles of association with the name assumed, and a description and impress of the seal adopted by such association. An association of persons known as a District or County Horticultural Association may become incorporated by depositing in the office of the Recorder of the county where such association is organized, a statement, under the seal of the State Horticultural Association, showing that such District or County Association was organized for horticultural purposes, and is entitled to representation in such State Horticultural Association at its annual and official meetings, and that such District or County Association has consented to elect at least one delegate to represent such Association in the annual and official meetings of such State Horticultural Society, and at the same time deposited, in said office, the name by which said association shall be known, with a description of the seal adopted, which statement, so deposited with such Recorder, shall be by him recorded in the miscellaneous record, for which he may charge and collect the sum of fifty cents, and thereupon such State, District or County Horticultural Association, by the name they shall assume, shall become bodies corporate and politic, with perpetual succession, and may by such name sue and be sued, contract and be contracted with, plead and be impleaded, and may take, hold and convey real and personal property, and may make all such by-laws, rules and regulations for the government of such associations, and the management of their affairs and property, as to them may seem best, not inconsistent with the laws of this State. Such associations may each purchase, improve or sell, not exceeding at any one time one hundred acres of land, for the use and pnrposes of such association; may erect thereon such buildings as they may deem proper for the use of such association, and the improvement of said land.

SEC. 2. It shall be the duty of any State Horticultural Association, organized under the provisions of the first section of this act, to hold at the city of Indianapolis, or some other place in this State, to be selected by such Association at its preceding meeting, an annual meeting for the purpose of deliberating and consulting as to the wants, prospects and conditions of the horticultural interest of the people of the State, at which meeting the District and County Horticultural Associations may be represented by at least one or more delegates each, as such State Association may provide for, and such District and County Associations shall forward by such representatives the report of the condition and prospect of such District or County

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Associations, to the said State Horticultural Society, and such State Horticultural Society, with such representatives as shall be present, may authorize their President and Secretary to make such annual report, as they shall direct, to the Governor, to be by him presented to the next General Assembly, which report, amongst other things, shall state the amount of money received from the State and other sources, and the disposition of the same, to whom and for what purpose paid, together with a brief summary of the discussions of said Society, giving the condition of horticulture and the recommendations of District and County Associations, copied from their reports, and a summary of the condition and wants of horculticure throughout the State, with such recommendations as may seem for the interest of horticulture, and its encouragement in the State.

SEC. 3. Such State Horticultural Association having complied with the foregoing provisions, shall be entitled to the occupancy and use of any unappropriated room in the Capital, or other building used or occupied by the State, to be designated as the Department of Horticulture, and such Society, occupying the same, may deposit therein a library, and such specimens of horticultural industry and representations of the same, with such collections of insect specimens or birds as are injurious or beneficial to horticultural products in this State, with such floral specimens and representations as shall be collected by such Association, all of which articles, and such others as such Association shall collect and deposit in such room, as in this section mentioned, shall, under such regulations as such Society may adopt, be subject to the inspection and examination of the people of the State, and such society shall hold such until otherwise ordered, under such rules and regulations to be by them adopted, or the interest of horticulture may require; and may adopt such by-laws for their protection and good order as they may deem necessary, not inconsistent with the laws of the State.

SEC. 4. There being now no law providing for the incorporation and wants of horticulture, an emergency is declared to exist for the immediate taking effect of this law, the same shall therefore be in force from and after its passage.

AN ACT fixing the number of Trustees of Purdue University and prescribing the manner of their appointment.

[APPROVED MARCH 9TH, 1875.]

SECTION 1. *Be it enacted by the General Assembly of the State of Indiana*, That upon the taking effect of this act, it shall be the duty of the Governor of this State to appoint six Trustees for the Purdue University, two of whom shall be nominated by the State Board of Agriculture, one by the State Board of Horticulture, and three to be selected by the Governor himself; each of said Trustees to be appointed from a different Congressional district from the others, except that two may be appointed from the same Congressional district in which said University is situated.

SEC. 2. The persons so appointed shall constitute the Board of Trustees of said University and shall hold their offices as follows: Two members of the first board shall hold their offices for one year and until their successors are appointed; two for two years and two for three years, and at the expiration of the time of office of any of the members of the first, or any subsequent board, their successors shall be appointed in like manner and with like nomination as provided in this act, to hold their offices for the term of three years and until their successors are appointed.

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SEC. 3. If, from any cause, a vacancy occurs in said Board, the same shall be filled by appointment to fill the unexpired term, the person appointed to fill such vacancy being nominated and appointed in the same manner as his predecessor had been at the commencement of such term.

SEC. 4. Said Trustees shall, at their first meeting after their appointment, and every two years thereafter, choose a President of said Board, and they shall, at such meeting and every two years thereafter and whenever a vacancy occurs, elect, by ballot, a Secretary and Treasurer, neither of whom shall be a member of the Board, whose compensation shall be fixed by said Trustees. The said Treasurer shall give bond to the State of Indiana in the sum of three hundred thousand dollars for the faithful execution of his trust, with sufficient sureties to the approbation of said Trustees, and he shall receive, take charge of, and, under the direction of said Trustees, manage all the stocks and funds belonging to said University.

SEC. 5. All laws and parts of laws conflicting with any of the provisions of this act are hereby repealed.

AN ACT providing for the protection of wild game, and defining the time in which the same may be taken or killed, and also providing for the protection of certain birds therein named, and their eggs, and prescribing the penalty for the violation of the same, and repealing all laws inconsistent herewith.

[APPROVED MARCH 5TH, 1877.]

SECTION 1. *Be it enacted by the General Assembly of the State of Indiana*, That it shall be unlawful to shoot, trap, or kill in any manner, deer, buck, doe, or fawn, within this State between the first day of January and the first day of October in each year; and for each deer, buck, doe, or fawn, so shot, trapped or killed in any manner, the person or person so offending shall, on conviction thereof, be fined in the sum of ten dollars.

SEC. 2. It shall be unlawful to net or trap quails at any time; and it shall be unlawful to shoot, trap, or destroy quails or pheasants from the first day of January to the first day of November of each year. Any person or persons violating the provisions of this section shall, upon conviction thereof, be fined the sum of two dollars for each quail or pheasant shot, trapped or netted.

SEC. 3. It shall be unlawful to shoot or trap prairie hens or chickens between the first day of February and the first day of October in each year, and it shall be unlawful to net prairie chickens at any time; and any person or persons violating the provisions of this section shall, upon conviction thereof, be fined the sum of two dollars for each prairie hen or chicken so shot, trapped or netted; *Provided*, That nothing herein contained shall be so construed as to authorize any person to enter upon the farm or premises of another without permission of the owner thereof. That any person or persons who shall be guilty of hunting with a dog or dogs, or hunting or shooting with any kind of fire-arms, in inclosed lands, without having first obtained the consent of the owner or occupant thereof, shall be guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not less than five nor more than fifty dollars; *Provided*, That no prosecution shall be instituted under the provisions of this act, except upon the consent of the owner or occupant of the land entered.

SEC. 4. It shall be unlawful for any person to kill or injure, or to pursue with intent so to do, any turtle dove, meadow lark, robin, mocking bird, blue bird, wren,

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sparrow, red bird, pewee, martin, thrush, swallow, oriole, yellow-hammer, cat bird, or to wantonly destroy or disturb the eggs or young of the birds protected by this act; and any person violatiug the provisions of this act or section shall, upon conviction thereof, be fined in the sum of not less than one nor more than ten dollars.

SEC. 5. That it shall be unlawful for any person to net, trap, kill or injure, or to pursue with intent so to do, any woodcock between the first days of January and July of each year, or to net or trap at any time, or kill any duck between the fifteenth day of April and the first day of September in each year; and any person violating the provisions of this act shall, upon conviction thereof, be fined in the sum of two dollars for each wild duck or woodcock so unlawfully trapped, netted, or shot.

SEC. 6. That it shall be unlawful for any agent or officer of any express company or railroad company, or any other person or persons, to receive or transport any game, whether deer, quails, pheasants, woodcock, wild duck, or prairie chickens, which shall have been killed, taken, or captured in violation of any of the provisions of this act; and any agent, officer, or other person so offending, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in the sum of ten dollars for each deer, buck, doe, or fawn so received or transported, and the sum of two dollars for each quail, pheasant, or prairie chicken so received or transported.

SEC. 7. All acts and parts of acts in conflict with any of the provisions of this act are hereby repealed.

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HONORARY MEMBERS FOR 1878.

Dr. Jno. A. Warder, North Bend, Ohio.
John C. Teas, Carthage, Missouri.
Z. S. Ragan, Independence, Missouri.
Chas. Downing, Newburg, N. Y.
John C. Weinberger, Saint Helena, Cal.
P. Barry, Rochester, New York.
Robt. Manning, Salem, Mass.
Prof. R. T. Brown, Indianapolis, Ind.
Nicholas Ohmer, Dayton, Ohio.
I. D. G. Nelson, Fort Wayne, Ind.
Prof. J. Hussey, Lafayette, Ind.
Parker Earle, Cobden, Illinois.
L. J. Templin, Hutchinson, Kansas.
Leo Weltz, Wilmington, Ohio.
Wm. G. Stephens, Richmond, Ind.
Wm. Parry, Cinnaminson, N. J.
R. W. Starr, Port Williams, Nova Scotia.
Cornelius Ratliff, Richmond, Ind.
Mrs. Mary P. Haines, Richmond, Ind.
Mrs. Andrew Wallace, Indianapolis, Ind.
Mrs. Helen V. Austin, Richmond, Ind.

LIST OF MEMBERS FOR 1878.

Granville Cowing, Muncie, Ind.
Addison Bybee, Bridgeport, Ind.
Jacob Lamon, Columbia City.
Ezra Zumbrum, Columbia City.
C. K. Zumbrum, Columbia City.
Eli Frazier, Rockville, Ind.
E. A. Eickhoff, Indianapolis, Ind.
J. Bower, New Trenton, Ind.
F. M. Polk, Tobinsport, Ind.
T. W. W. Sunman, Spades, Ind.
Oliver Albertson, Bridgeport, Ind.
Powell Howland, Indianapolis, Ind.
Sylvester Johnson, Irvington, Ind.
A. Furnas, Danville, Ind.
Cornelius Ohaver, Danville, Ind.
W. H. Ragan, Clayton, Ind.
A. C. Harvey, Lafayette, Ind.
Joseph Gilbert, Terre Haute, Ind.
Fielding Beeler, Indianapolis, Ind.
Daniel Bulla, Richmond, Ind.
J. C. Ratliff, Richmond, Ind.
J. N. Armantrout, Frankfort, Ind.
T. J. Hoover, Frankfort, Ind.
L. B. Custer, Logansport, Ind.
D. E. Hoffman, Winchester, Ind.
Dr. W. M. Sleeper, Oxford, Ind.
A. Stone, Winchester, Ind.
S. H. Beckner, Lafayette, Ind.
H. J. Lockhart, Muncie, Ind.
D. W. Davis, Belleville, Ind.
Wm. H. Mills, Plainfield, Ind.
Dr. E. E. White, Lafayette, Ind.
J. W. Newton, Lafayette, Ind.
Daniel Cox, Cartersbnrg, Ind.
Jno. W. Ragan, Fillmore, Ind.
R. M. Ragan, Fillmore, Ind.
Dr. S. S. Boyd, Dublin, Ind.
Joshua Ballard, Centre Valley, Ind.
D. T. Thornton, Bainbridge, Ind.
T. Hulman, Sr., Terre Haute, Ind.
Jas. S. Collins, Columbia City, Ind.
F. H. Foust, Columbia City, Ind.
John Bird, Raysville, Ind.
Benajah Parker, Raysville, Ind.
H. Mankedick, Indianapolis, Ind.
Thos. H. Beavers, Springport, Ind.
W. H. Vance, Springport, Ind.
D. A. Fisher, Denver, Ind.
Alfred Hadley, Centre Valley, Ind.
J. F. Carver, Greencastle, Ind.
J. A. Modesit, Terre Haute, Ind.
L. A. Stockwell, Cloverdale, Ind.

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PROCEEDINGS

OF THE

SEVENTEENTH ANNUAL SESSION,

HELD AT

PURDUE UNIVERSITY, NEAR LAFAYETTE,

DECEMBER 18, 19 AND 20, 1877.

FIRST DAY.

MORNING SESSION.

On Tuesday morning, December eighteenth, a number of the officers of the Indiana Horticultural Society, together with delegates who had arrived on the previous evening, met at the State Agricultural College. Cordial greetings were exchanged, and the members reported themselves ready for business. Before the hour of meeting had arrived, the members availed themselves of an invitation to attend morning services in the Chapel. The services were conducted by E. E. White, President of the University, in a very impressive manner. At the close of the service, the members were invited to visit the cabinet and the several recitation rooms, during the interim preceding the opening session.

OPENING SESSION.

At 11 o'clock the members again assembled in the Chapel. The President, Sylvester Johnson, of Irvington, called the meeting to order, and addressed the members of the Society in brief and appropriate remarks.

The addresses of welcome and response were postponed until the afternoon session.

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The annual reports of Secretary W. H. Ragan and Treasurer Daniel Cox were submitted by those gentlemen, and received by the convention. They were as follows:

ANNUAL REPORT OF THE SECRETARY.

To the President and members of the Indiana Horticultural Society:

Section four of our constitution imposes an onerous task upon your Secretary. In attempting to discharge the numerous duties therein catalogued, I am fully conscious of the fact that I have fallen far short of the task assigned me; yet when I contrast the work accomplished by our Society, and consider the economical manner in which its finances have been husbanded, as compared with the results accomplished by other kindred organizations, I feel that we have much to congratulate ourselves over. This is the seventeenth annual meeting of the Society, each year of which it has published a volume of transactions, of the value of which the people of this and other States are to be the judges, while the aggregate amount of aid received from the State has been $2,300, with $360 which was, in the palmier days of that organization, generously donated by the State Board of Agriculture. All other expenses have been borne by the individual members of the society. In addition to the annual publications above referred to, the society has expended $520 in premiums on essays, some of which are of great value; $207 in making an exhibit of Indiana horticultural products at the Centennial, upon which we were awarded the beautiful medal and two diplomas that now adorn this hall; and $56 upon a most excelent exhibit of fruits made at the late State Fair; besides, as will be shown by our Treasurer's report, laying up a handsome balance for a rainy day. Now I appeal to the good judgment and liberality of the people of the State to know if a more liberal appropriation by the Legislature is not due us. I believe in economy in all things, yet I am fully persuaded that our judicious management of the finances placed in our hands, in reporting a balance instead of a deficit, was the cause of our small State appropriation being reduced forty per cent. by the last Legislature.

LIBRARY.

Since, through the liberality of Secretary Heron, of the State Board of Agriculture, and the State Librarian, we are now possessed of a home, of which the President will more fully explain, I have devoted myself to the building up of a permanent library, which time only prevents me from furnishing you a full catalogue of in this connection, and which I still hope to be able to accomplish in time for publication in the next volume of transactions. Most of the volumes in our possession are exchanges and donations. I would recommend the use of a portion of our accumulated balance in treasury to be used in the purchase of additions to the library.

The financial interests of the Society are fully represented in the following brief statement, together with that of Treasurer, which immediately succeeds it.

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EXPENDITURES.

Postage on transactions	$11 60
Freight and express charges on books	6 00
Postage on letters, circulars and cards	13 00
Stationery	5 00
Expenses in reading proof	6 00
Printing circulars	5 00
Total of expenses	$46 60
Salary	200 00
Total expenses and salary	$246 60

RECEIPTS.

From treasurer, on account of expenses	$50 00	
From treasurer, on account of salary	100 00	
Total of receipts		$150 00
Balance due Secretary on all accounts		$96 60

List of warrants drawn on the Treasurer from December 21, 1876, to December 18, 1877:

Dec. 21, 1876.	No. 1.—S. V. Morris, services as assistant	$30 00
April 17, 1877.	No. 2.—W. H. Ragan, balance last year's salary	80 70
April 17, 1877.	No. 3.—W. H. Ragan, part of salary	50 00
July 16, 1877.	No. 4.—W. H. Ragan, on account of expenses	50 00
Aug. 14, 1877.	No. 5.—W. H. Ragan, part of salary	50 00
Oct. 1, 1877.	No. 6.—W. H. Ragan, State Fair exhibition	40 76
Oct. 1, 1877.	No. 7.—W. H. Ragan, expenses to Baltimore	55 00
Dec. 8, 1877.	No. 8.—Indiana Farmer Co., printing circulars, etc.	8 00
Dec. 13, 1877.	No. 9.—Tilford & Carlin, binding books	6 00
Dec. 13, 1877.	No. 10.—H. Lieber & Co., framing diplomas and medal	11 50
Total		$381 96

All of which is respectfully submitted,

W. H. RAGAN, Secretary.

Report of the Treasurer to the Indiana Horticultural Society.

RECEIPTS.

March 21, 1877, received of Charles Lowder, former treasurer, in account.	$858 18
April 15, 1877, received of S. Johnson, State appropriation	300 00
April 17, 1877, received of W. H. Ragan, for membership fee	69 00
Total	$1,227 18

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EXPENDITURES.

Dec.	21, 1876, order No. 1, paid to S. V. Morris, services at Richmond...	$30 00
April	17, 1877, order No. 2, paid to W. H. Ragan, on salary for 1876.....	80 70
April	17, 1877, order No. 3, paid to W. H. Ragan, part of salary.....	50 00
July	16, 1877, order No. 4, paid to W. H. Ragan, expenses as secretary.	50 00
Aug.	14, 1877, order No. 5, paid to W. H. Ragan, part salary as secretary	50 00
Oct.	1, 1877, order No. 6, paid to W. H. Ragan, expenses of fruit show in 1877	40 76
Oct.	1, 1877, order No. 7, paid to W. H. Ragan, expenses of American Pomological Society, Baltimore.....	55 00
Dec.	8, 1877, order No. 8, paid to Indiana Farmer Co., printing placards.	8 00
Dec.	13, 1877, order No. 9, paid to Tilford & Carlin, binding books.....	6 00
Dec.	13, 1877, order No. 10, paid to H. Lieber & Co., framing diplomas.	11 50
	Total expenditures.....	$381 96
	Balance in Treasury.....	$845 22

Respectfully submitted,

DANIEL COX, Treasurer.

The following special committees were appointed by the chair:

On Fruits—L. B. Custer, Daniel Cox, J. C. Ratliff.

On Resolutions—Dr. Allen Furnas, W. H. Ragan, Mrs. Mary P. Haines.

On Nomination of Officers—J. C. Ratliff, L. B. Custer, Daniel Cox.

Adjourned to meet at 1:30 P. M.

REMARKS.—The Chapel, in which the meetings were held, is a tasteful, commodious room, with galleries on three sides. At the back of the platform is a full-length portrait in oil of Mr. John Purdue, in honor of whom the University is named. On this occasion were exhibited the diplomas and the bronze medal awarded by the Centennial Commission to the Indiana Horticultural Society. These testimonials called forth much admiration both as to the artistic beauty of the designs and their execution, and also the tasteful manner in which the medal and diplomas are framed. The medal rests upon a pedestal, in which it can be revolved, thus exhibiting either side to advantage.

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AFTERNOON SESSION.

Pursuant to adjournment, the Society met at 1:30 P. M., President Johnson in the chair.

President E. E. White, of Purdue University, greeted the delegates most cordially in an

ADDRESS OF WELCOME.

In the course of his remarks, Prof. White said that the object of the Horticultural Society was one of the objects of the Institution. Horticultural adornment has been in view, and in time will be carried to more perfection. The Treasurer of the Institution has donated one thousand dollars for a green-house. He spoke of the campus as an evidence of a desire to make a practical application of the science of horticulture. I beg of you not to criticise too sharply what you may see, as our work is but in an incipient condition. We hope in a few years to show you satisfactory results. There is no department of industry that we can more fully put into practical application than horticulture. He complimented the Society for the success which was the reward of its labors, and spoke in warmest terms of the horticultural adornment of the houses of our people. It is a lamentable fact that many persons waste valuable time in idleness that should be devoted to the esthetic pursuit of horticulture. He alluded to the habit of the German peasantry of making lovely their homes with fruits and flowers. If there is a place on earth where a flower is beautiful, it is in the yard of our school houses.

RESPONSE BY DR. ALLEN FURNAS.

It would appear that our lives have fallen in pleasant places. We have the assurance that this welcome is sincere. I assure you that we are thankful for the cordial welcome extended to us through President White. Horticulture is somewhat local. We must work out certain problems for ourselves. We can not depend with safety on the results of Eastern horticulturists. We have the work to do for ourselves. What will be successful in one locality will not be in another. We came not here to teach you, but to be taught. During my professional life I have visited the lowly in life, but often found evidences of culture evinced in those humble cottages. We should make our homes attractive to our children. I feel that

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my position as a farmer and horticulturist is not less elevating than any positions occupied during my life. He spoke encouragingly to the youth of the present time in regard to their opportunities. My school days were spent under many difficulties. My young friends, we come here for the purpose of encouraging you. It is to the youth of the land that we must look for those who will fill our places when we are gone. May you fully appreciate your opportunities and nobly fill your places in life.

At the conclusion of Dr. Furnas' remarks, Sylvester Johnson delivered the

PRESIDENT'S ANNUAL ADDRESS.

Ladies and Gentlemen of the Indiana Horticultural Society:

We meet for the seventeenth time in annual session to review the past, improve the present, and plan for the future. Although the horticulturist has not, the past year, experienced the full fruition of his desires, especially in the fruit crop, yet he has much for which to be thankful. The promise in early spring of a bountiful fruit crop was greatly dispelled by the severe frosts on the last day of April and the first day of May. Raspberries and strawberries were, in this State, an average crop, while most other fruits fell far below. The scarcity of fruit, however, has not been without its compensations. The trees, bushes and vines have made a more vigorous growth than usual, and are now loaded with germs which promise much for next year. Besides the reproduction of insect enemies of fruit is usually in inverse proportion to the amount of fruit; hence we may not expect so many of these as usually succeed a bountiful crop.

Nature, always ready to compensate in one direction for losses in another, has this year literally strewn our paths with flowers. Never before has there been such a profusion of them. One of the most notable encouragements to the horticulturist is the increased interest that has, in the last few years, been awakened in the cultivation of flowers. Allow me here to suggest that, as primarily the word horticulturist did not more include the cultivator of the fruit garden, or the vegetable and herb garden, than it did the flower garden, we appropriate at least a small portion of the time of this session in talking of flowers and their cultivation. This would be particularly appropriate now that the ladies are interesting themselves in our meetings. Heretofore our discussions have taken a wide range. We have even discussed various methods of cultivating the different farm products, the cause and prevention of hog cholera, etc., etc. This enlargement of the field of horticulture is probably not very objectionable, inasmuch as agriculture and horticulture are so nearly allied, if by so doing we do not lose sight of one of our fundamental arts, the cultivation of the flower garden.

OUR HOME.

Much has been said and written at former meetings of this society of "Home," "home adornments," etc. But not until within a few weeks past could the Indiana Horticultural Society boast of one of these homes. Through the kindness and liberality of Secretary Heron, of the State Board of Agriculture, and State Libra-

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rian Connor, we have had set apart by the former and furnished by the latter a neat, cosy little hall in the State Building, adjoining the rooms of the State Board of Agriculture, well finished, tastefully furnished and somewhat adorned. A part of the furniture consists of a large book case. Through the enterprise of Secretary Ragan, who is ever alive to the interests of this Society, quite a beginning in the way of a library is already made, and ere long it is hoped that this capacious book case may be filled. To this end I would recommend that a small portion of the funds of this Society be appropriated to the purpose of adding to this library some standard works, embracing subjects interesting to the horticulturist and pomologist. The thanks of this Society are due and no doubt will be tendered Messrs. Heron and Connor for the kindly interest they have taken in thus establishing a home for us; also to Secretary Ragan for his interest in adding to its adornments. It will now become us to take possession of this home, add to its adornments and library, and make it indeed what the word home implies, a pleasant place to live and an attractive place for visitors.

PURDUE UNIVERSITY.

Horticulturists, always the friends of industrial education, view with great delight the upbuilding of an institution in our State which has for its object the education of the children of those who avail themselves of its advantages, and to fit them for lives of honor and usefulness on the farm, in the workshop, and in the garden. It is a lamentable fact that the boys of the day, who have been reared on the farm and in the garden, are too often "prone to wander," to abandon these avocations, and seek the profession, the counting and storerooms. In the language of Prof. R. T. Brown, "many of these boys spoil very good farmers and make very poor professional men." The boys are not altogether to blame for this. On the farm and in the garden is too often one continual round of drudgery, unrelieved by refined associations, or lightened by educated skill. Let these boys come to understand that it takes full as much education and refinement to make a good farmer or gardener as it does to make a good doctor or lawyer, then they will become interested in procuring this education. I am informed that one of the objects of this institution is to raise the standard of agricultural and horticultural education, and to teach the fathers, sons, and daughters, these pursuits, that only by being educated in them can they make them pleasant, profitable, and elevating. The people have yet to learn that the educated farmer and horticulturist will raise larger corn, better wheat, finer fruits, and more beautiful flowers, that will bring more remunerative prices, and that they will accomplish these ends with much greater ease than he who is uneducated in these arts. It is for these, and many other reasons, that the horticulturists of Indiana look with pride upon this institution. Many of its warmest and most ardent friends may be found in our society, and I can not too strongly urge horticulturists throughout our State to aid, in every laudable way in their power, in strengthening Purdue University, thereby increasing its usefulness and assisting in elevating the standard of agricultural, horticultural, and mechanical education to that prominence it deserves.

EXHIBITION OF FRUITS AND FLOWERS AT THE LAST STATE FAIR.

At our last annual meeting a resolution was adopted appropriating two hundred dollars to defray the expense of an exhibition under the auspices of this Society at the State Fair. The objects of this horticultural display were to show to the peo-

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ple of the State what great progress had been made, mainly through the instrumentality of this Society in the art of horticulture, and to prove to our legislators who have so kindly appropriated small amounts biennially to our use that such appropriations have been wisely made, and that the money had not only been judiciously and economically used, but that it had been the means of greatly increasing the interest of our people in horticultural pursuits. The result proved entirely satisfactory. The display was in every way a success. The exhibition of apples was particularly fine, and elicited the highest encomiums of a vast number of visitors. There can scarcely be a doubt but that this exhibition elicited such an interest among the many thousands that witnessed it as will in the future work greatly to the interest of horticulture and pomology throughout our State.

Usually appropriations for any specific purpose are all absorbed, and calls made for additional ones before the objects for which they are made are accomplished; but not so with the Indiana Horticultural Society. In this case, of the two hundred dollars appropriated, only forty dollars and seventy-six cents were used; and of the Centennial appropriation of one thousand dollars, only two hundred and seven dollars and fifty-four cents were absorbed. For the success of this enterprise, and for the economical use of the funds appropriated, too much praise can not be awarded to Secretary Ragan. His untiring zeal and unremitting exertions to make a successful and creditable display were certainly very praiseworthy. A few other active, zealous horticulturists from different parts of the State assisted greatly in making this display, both in the collection of fruits and in assisting to arrange them. Of the more prominent of these I will name L. B. Custer, of Logansport, F. M. Polk, of Perry county, Eli Frazier, of Parke county, and Benajah Parker, of Henry county, all of whom were liberal contributors and active in assisting to arrange the fruits for exhibition. Mrs. Andrew Wallace, of Indianapolis, made one of the best individual displays of fruit ever made in the State, and too much praise can not be awarded this lady for her zeal and success in horticulture. I would especially recommend that measures be adopted at this meeting looking to a similar display at our next State fair.

STATE BOARD OF AGRICULTURE.

The warm, fraternal feeling which has at all times existed between the State Board of Agriculture and the members of this Society is certainly very gratifying. Our interests are very nearly identical, and the arts not far different. It is difficult to conceive how one can be a good, practical horticulturist and not know much about nor be interested in agriculture. It is still more difficult to understand how the agriculturist can ignore horticulture. The agriculturist has the broad acres, the teams, the implements and the fertilizers, to which, if he has the happy faculty of adding a little horticultural knowledge, will insure in their season a full supply of all kinds of fruits, flowers and vegetables, at a very small cost and with a large per cent. of profit. By keeping alive this fraternal feeling, and by mutually recognizing the fact that each may be of advantage to the other, and co-operating together for the good of both, great advancement may be made in our respective arts. While we duly recognize the fact that agriculture stands at the head of our great industrial system, we claim that horticulture is one of the important branches.

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ORNITHOLOGY AND ENTOMOLOGY.

Although these two sciences are separate and distinct, yet when considered in their relations to horticulture they may very appropriatey be discussed under one head. That the insect enemies of fruits and vegetables are on the increase will, I think, be admitted by all careful observers. That there is a cause for all this will be as readily admitted. What this cause is, is not so apparent. I will venture a few thoughts as to what I think the cause is, and as to the remedy, more for the purpose of directing your attention to the subject, and to elicit discussion upon it, than to lay before you any thoughts of my own. Much observation and investigation during the past year has impressed upon my mind the fact that as the feathered tribe decrease in numbers, our insect enemies increase in an inverse ratio. That when the equilibrium, established by an all-wise Creator between birds and their principal food, the insects, is destroyed, just then the insect steps in and curses the authors of this mischief. It may be said that these curses fall equally as heavy on those who are not guilty as on those who are. Curses like rains, fall upon the just and unjust. But in this case who are just? It is true the devoted horticulturist is not guilty of the destruction of birds; but is he not almost equally as guilty when he votes for a man to represent him in the Legislature who either does not care to protect the birds by legal enactment, or is positively opposed to such protection? The people must be educated on this subject, and while horticulturists would make good teachers in a practical way, yet even they want the light of science brought to bear upon this subject, and to this end we ought to have in this State, supported by the State, both an entomologist and ornithologist. These officers would teach the people the prescise relations existing between birds and insects; which of the latter are our enemies and which our friends. They would instruct us not to go into our potato patch with our poisonous paris green to kill our friends, which are probably destroying greater numbers of the Colorado beetle than our paris green does. They would instruct us not to do many other silly things we do, and to do many wise things we leave undone, just because we don't know any better. We have now a State Geologist, who has been of incalculable service to our State, but do the interests of the people of the State require the labors and scientific researches of this officer more than those of the entomologist or ornithologist? Certainly not. Are the development of our mineral resources in a few counties of the State of greater importance than the protection of the fruits, grain and vegetables from insect depredations in every county of the State? Other States have created these officers, and are reaping the benefits. Why shall Indiana longer refuse them?

Inasmuch as there will be no session of our Legislature until after our next meeting, active measures need not be adopted now looking to the creation of these two offices; but in the meantime the members of the Legislature will be to elect, and it would be well for horticulturists to give this matter some attention when those members are to be selected.

MISSIONARY WORK.

Allusion has already been made to the very general ignorance, among the masses, of the art of horticulture. Even those who sometimes exhibit enough interest to attend our meetings, give striking exhibitions of this ignorance. A forcible illustration of this I noticed in reading the proceedings, not long since, of a horticultural meeting in an adjoining State, at which the subject of the injury to peach buds

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by the excsive cold weather of last winter, was being discussed. This discussion developed the fact that the fruit buds were very generally killed. One gentlemen, however, who owns a peach orchard of nearly thirty thousand trees, remarked that the buds on his trees were, upon a very careful examination, found to be alive and uninjured. A member of the society, somewhat wiser than he, asked him if, in his examination, he did not find a little black speck at the center of the bud? "Oh, yes," said he, "I did, but when I cut a little further back I found it green and all right."

The prevalence of this ignorance will be admitted by all intelligent observers. The question for us to determine is, what can *we* do to remove it?

Probably the first thing for us to do will be to adopt all the devices our ingenuity can invent to get the people interested in horticulture. This may be done in various ways. One may become interested by being invited and attending our local meetings, and hearing our discussions. Another by witnessing the very fine fruits, flowers and vegetables on our tables. Another, a little more shy, must have a plate of large and luscious strawberries sent to him before he becomes interested. Another, who is blessed with a social nature, will become interested in the social feature of our local meetings. And still another, a little more worldly than the others, will become *very much* interested when he learns that a well-cultivated vegetable and fruit garden is profitable, as well as pleasant and convenient. And yet another may be induced to join in our favorite pursuit by receiving, at our hands, a few strawberry plants, or grape-roots or cuttings, or by our making his wife a present of a few choice flower-seeds, or geranium or other slips. This work must be done in the spirit of the true missionary. We must *give* these things, for we can not expect them to pay us for them, while they are still ignorant of their value. In order to accomplish this work we must have more local organizations. Let us, then, go to work in our respective localities, and organize. When urging this course we are frequently met with the statement that there are not enough persons interested in our neighborhood to form a society. To this, it may be said, that one or two wide-awake horticulturists in any neighborhood, if they but make the effort, will soon succeed in eliciting sufficient interest to create a pleasant and profitable society.

LEWIS JONES.

This pioneer horticulturist has, since our last meeting, gone from the field of labor to his reward. He presided at the organization of this society seventeen years ago, and was, to the time of his death, a faithful and active member. His contributions of fruits at our annual meetings and fairs very frequently outnumbered all others. He introduced to notice several seedlings of his own, which had considerable merit. In portraying the qualities of these fruits, he was noted for his honesty and freedom from exaggeration. He will be missed and lamented by the members of this society, as well as by all who knew him. But as Hon. J. C. Ratliff has prepared a eulogy upon the life and character of our departed friend, I will forego the pleasure it would give me to further dilate upon his upright character and many christian virtues.

THANKS.

I feel that it would almost be an unpardonable omission were I to close this address and not in this public manner thank our worthy secretary for the many acts of kindness shown your president during the past year, and for his efficiency in the

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performance of the arduous duties of his office. He has very much lightened the duties of this office by taking them upon himself. Thanking other officers and members for many acts of kindness, I close, by expressing the hope that this will be to you a pleasant and profitable session.

The Secretary then read the

FRUIT REPORT FOR THE TWELFTH DISTRICT.

BY I. D. G. NELSON, OF FORT WAYNE.

FORT WAYNE, IND., December 15, 1877.

To the President of the Indiana Horticultural Society:

DEAR SIR—Acting under appointment, I submit the following very brief and uninteresting report for the Twelfth District.

The fruit crop was so light in 1877 in this section, that I can present the subject in no phase that will justify the time in reading it at your meeting, or entitle it to a place in the transactions for the year.

Apples were almost a total failure. The Pear, which is next in importance, was about half the usual average, perhaps below. The steady advance of the blight makes the culture of the pear very discouraging, although when proper attention has been given to the timely and severe cutting back to green sound wood, upon the first appearance of the disease, and the immediate burning of the limbs cut off, seems to have an encouraging effect. The blight has never been quite as destructive here as I read of in many other localities.

Peaches, Plums and Cherries are scarcely grown here any more, except a few early Richmond and Morello.

The Grape crop, in the main, was very good, although in a few localities the rot did some damage—a thing quite unusual with the Concord, which is now about the only variety grown here, except by a few amateurs, whose experiments are attended with very indifferent success.

The yield of Strawberries, Raspberries, Currants, etc., was about the usual average. The Wilson, as formerly, steps to the front on call for the best market berry.

Insects have done great damage to the fruit crop and trees for several years, but have diminished very perceptibly for the past year or two, except the curculio, which still holds the fort.

Secretary Ragan also submitted a communication, the reading of which was called for, and is as follows:

STRAWBERRIES, BLACKBERRIES, AND RASPBERRIES, IN DELAWARE COUNTY.

In compliance with your request, I furnish herewith a few notes relative to my experience with strawberries, blackberries, and raspberries, during the past season.

I sold about one hundred and twenty bushels of strawberries in Muncie, at a net average price of ten cents per quart. Picked the first berries on the ninth of June and the last on the sixth of July. The frost on the second of May killed nearly all the first flowers and shortened the strawberry season four or five days. Perhaps the

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frost was a friend in disguise. Had all the flowers produced fruit the price might have sunk below the cost of production. My crop was derived from about an acre of Kentucky, Green Prolific, Monarch of the West, Cowing's Seedling, Wilson's Albany, Chas. Downing, and small proportions of new varieties on trial. I had old and new patches of all the best known varieties, and had an excellent opportunity of noticing the effect of late frosts on same sorts in neglected and in well-cultivated beds. Chas. Downing was, under all the circumstances, the most complete failure I noted. Col. Cheney, Downer's Prolific, Russell, Metcalf, and Boyden's No. 30, were not much better where thoroughly cultivated or in neglected beds. The frost caught them in the best condition possible for a telling blow. Boyden's No. 30 is a large solid berry of finest flavor, but has never been sufficiently productive with me. Heretofore Col. Cheney has been productive. It produces large and beautiful berries, but they are too soft, sour and pasty, and it can not prove of permanent value. I can say even more in disparagement of Star of the West. It is the most robust grower I ever saw, and sufficiently productive, and its fruit is large and showy, but it is insipid in flavor, rots sooner than any other berry I am acquainted with, and on account of its extreme softness is unfit for even a home market. I know of no other variety that has been so highly lauded with as little reason. Prouty's Seedling is as productive as Wilson, better flavored, and, probably as solid, but I fear that in years of drought the bulk of its fruit will prove too small for market purposes. It is a robust grower, and makes but few runners on my ground. The Champion is the most promising new sort I have fruited this season. Its berries are large, of fair flavor, and color like Wilson; a strong grower and very productive. It is rather soft, which, I believe, is its only defect. I have never found Metcalf or Downer's Prolific of the slightest value. I may be able to give you my experience with many new varieties at the end of another season. Green Prolific and Kentucky are the only varieties that have been this season uniformly productive under all circumstances; in beds mulched and highly cultivated, or neglected and bare. The late period at which they flowered was the cause of their exemption from injury. Monarch and Cowing's Seedling were unproductive in well-cultivated and mulched beds, and productive in neglected beds. I find flax straw the most perfect mulch and winter covering for strawberries. I also use forest leaves, corn-stalks, and shavings. Late frosts injure mulched strawberries much more than those not mulched. In an experience of twenty years I have never known a season so unfavorable for picking and marketing strawberries, as the last. Twenty-four hours rarely passed during the picking season without rain. Berries generally were very large. In one instance I picked seventeen berries of Monarch and Cowing's Seedling, which made a full quart; and another quart, sent to the *Farmer* office, was composed of nineteen berries.

Blackberries.—Kittatinny was badly winter-killed, and bore but little fruit. It is more subject to rust than any other variety. Hoosac Thornless is the most worthless blackberry I ever saw. It is a poor grower, and I have never seen one of its berries that was larger than an ordinary pea. Snyder pleases me very much. I have cultivated it for three years, and have found it to be perfectly hardy, a strong grower, enormously productive, and fruit of medium size, brilliant black, and of the finest flavor. The indications are that Taylor's Prolific is as hardy as Snyder, with fruit larger, and in every other way as desirable; but I must test it another season before expressing a positive opinion concerning its merits.

Raspberries.—Doolittle and Mammoth Cluster are still the best Black cap varieties. Turner is a red raspberry of the finest flavor, but on my ground, a heavy clay, it has not been sufficiently productive. Ganargua, a new red raspberry, is

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perfectly hardy, and the most productive variety I am acquainted with. Fruit very large and of good flavor. It is propagated from tips like the Black caps.

GRANVILLE COWING.

Muncie, Ind., November 8, 1877.

To Hon. W. H. RAGAN, Sec'y Indiana Horticultural Society.

This paper called out quite a lengthy discussion.

SECRETARY RAGAN remarked that he regarded this as one of the best papers ever brought before the Society.

PRESIDENT JOHNSON—Coincided in the opinion regarding Mr. Cowing's communication. Especially did he endorse what was stated of the Taylor's Prolific Blackberry.

DISCUSSION ON STRAWBERRIES.

DR. FURNAS—Green Prolific has been the favorite berry with me. The berry which I obtained from Weltz, the Ida, has proved an excellent strawberry. It is small, but comes early and lasts long. We had them on the table last summer on the twelfth of June. Captain Jack is not a great grower.

J. C. RATLIFF—I regard flax straw as a good mulch, but it contains seeds of weeds. Prefers wheat straw. Mr. Ohmer uses wheat straw. He covers the plants all over with this, and in the spring lets it remain.

JOSEPH GILBERT—Mulched strawberries are not apt to be injured by the frost; it keeps them back. The last season the Green Prolific has been the most profitable; have not tried the new varieties; prefers wheat straw to flax; the better way is to use old straw.

MR. JOHNSON—I have a friend who uses sorghum stalks.

DR. FURNAS—Has any one experience with Col. Cheney? There are some objections to Col. Cheney; it is rather acid and watery, not good for market, and has short stems. Have success with the Kentucky; am trying Captain Jack. The white grub worm destroyed a whole crop for me mulched with sorghum stalks. It might have been the case with any other kind of mulch.

MR. BECKNER, Lafayette—I have had some experience with the white grub; for the distance of fifty feet they would not leave a plant. I used the ashes of corn cobs successfully in exterminating them. I succeed best with Green Prolific, Great American and Captain Jack. Ida is a good berry, but I discarded it on account of its small size. I use forest leaves as a mulch, but it is difficult to make them lie on the ground. I cover my plants about six inches deep; place a light covering of mold on the leaves to keep them

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from being blown away. I have about 4,500 grape vines; my grapes all rotted last year.

W. H. RAGAN—I am much pleased with Mr. Beckner's remarks. We want the experience of just such men as he. We meet to learn from each other. In regard to the white grub, we need more light on entomology; we need to learn all we can of the habits of various insects, that we may guard against their ravages.

MR. OHAVER—Asked how would saw dust do for a mulch?

DR. FURNAS—Another home for the white grub.

W. H. RAGAN—Objects to saw dust. It contains acids injurious to the plants. If saw dust is used at all, it should have been exposed to the weather, and have lost the properties it contained while green.

DR. FURNAS—If you want to mulch with saw dust use the rake freely; that lets the water down to the plants.

MR. OHAVER—I have had good success with corn stalks as a mulch.

L. B. CUSTER—Wheat straw has been considered best by many. I have tried it and found it full of timothy seed.

Several members suggested that the straw should have stood long in the stack, exposed to the rains, that the timothy and other seeds may have sprouted and decayed.

PRESIDENT JOHNSON—Had found corn stalks best for a mulch. They are free from weed seeds, and easily handled. I put about three stalks in a row. That is plenty. Wheat straw will leave weeds; saw dust packs down; corn stalks are the best.

DISCUSSION ON BLACKBERRIES.

W. H. RAGAN—Wished to know if it was the experience of members that the Kittatinny was more subject to rust than other varieties.

MR. BECKNER—The rust has not affected the Kittatinny with me. Had seen the rust on raspberries.

MRS. OREN—Asked, where did the rust start? Was answered, on the foliage.

W. H. RAGAN—Stated that the Snyder originated, he believed, at Laporte, in this State, where he first saw it in 1871. The Wilson has not succeeded in the west. Spoke of Mr. N. Ohmer's manner of supporting his canes with wires; cuts out the old wood with pruning shears.

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MR. OHAVER—Supports his with stakes; ties up carefully. Never allows more than two canes to grow. Cultivates like he would corn. For three weeks in succession I have picked a quart of berries every other day from one hill. Esteem the Lawton as a fine berry, but it is tender; gets winter-killed.

MR. BECKNER—Supports his blackberries with stakes and wires; cuts his canes down to three feet.

DR. FURNAS—When in New Jersey I saw how William Parry trained his blackberries. They cut out the old wood with a hook. I disagree with Mr. Beckner; I don't cut back so closely. I use corn husk to tie up the canes.

MR. BECKNER—Blackberries will grow as high as the house if not cut back. The berries grow on the laterals.

MR. JOHNSON—Mr. Beckner is wrong; Dr. Furnas is wrong; blackberries need some trimming.

MR. OHAVER—Cuts his bushes to about five feet high while they are growing; then lets them grow, and trims in the spring or fall.

PRESIDENT JOHNSON—Thought the most important point—the rust—was being omitted. Had observed one bush in the middle of the patch effected with rust. Had cut it out. The next year there were two bushes effected the same way, near the same place.

DR. FURNAS—Had examined the rust with a microscope. It is a parasitic growth. The remedy I don't know.

MR. OHAVER—Asks if the rust appears on the new growth? Answered, that it does.

W. H. RAGAN—Whatever it is it is contagious. It seems to be a disease of the root. A few feeble shoots come up, and are sure to be effected with rust.

REPORT OF THE FRUIT EXHIBITION AT THE STATE FAIR.

BY SECRETARY W. H. RAGAN.

During last August the Secretary published the following circular, in compliance with previous action of the Society:

"CLAYTON, IND., August 15, 1877.

"Your attention is respectfully called to the following resolution, unanimously adopted by the Indiana Horticultural Society, at its regular annual meeting in December last:

"*Resolved*, That, provided the finances of the society will justify the appropriation, an amount not to exceed two hundred dollars, be used in making a collection of fruits and other horticultural products, to be exhibited under the auspices of this

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society, at the annual Indiana State Fair of 1877, the same not to compete for premiums. The collecting, arranging and exhibiting of said horticultural products, to be under the care of a committee of five members of this society, to be distributed as nearly as possible throughout the State; said committee to keep and report an itemized statement of expenses of collection and exhibition of the same, together with a list of the varieties exhibited, with any other item of information, in regard to culture, diseases, insects, or soils, that may be of interest to the people of the State, to the next annual meeting of this society, which, with its approval, shall form part of the published transactions thereof. All varieties to be plainly and correctly labeled, except in the case of new and unknown sorts, which shall be exhibited, appropriately labeled, in a separate collection.

"The president has appointed the following members a committee for the purpose of carrying out the provisions of the resolution:

"J. C. Ratliff, Richmond; J. V. Milhous, Butlerville; L. B. Custer, Logansport; H. D. Scott, Terre Haute; and F. M. Polk, Tobinsport. The officers of the society, including the members of the State fruit committee, are *ex-officio* members of the committee.

"One year ago the Indiana Horticultural Society, with a small expenditure of money, made an exhibition of fruit at the Centennial, of which our State need not feel ashamed, the result of which, was the award of a centennial medal, to the 'best pears,' notwithstanding California was a competitor. Let us now see what we can do for a home display, where other results, (such as the encouragement of fruit culture, etc.,) aside from mere show, may be anticipated: Collections and donations of fruit, or other horticultural products, properly labeled, accompanied by the donor's name, may be forwarded, per express, at the expense of the society, to Indiana Horticultural Society, State Fair grounds, Indianapolis, so as to reach the destination on or before Monday, September 24, 1877.

"SUGGESTIONS TO COUNTY ASSOCIATIONS.

"It is further suggested, that the officers of the various county and district fair associations holding their exhibitions prior to the State Fair, make selections of fruit from their exhibition tables, forwarding the same as above requested, thus assisting in a laubable enterprise. Indiana Horticultural Society, in this understanding, hopes to be able to present for exhibition, as well as for actual information to fruit growers and others, such a collection of fruits and horticultural products, as has not heretofore been made within our State, and to this end, we, the officers of the society, solicit choice specimens from any and all sections of the State. Four specimens of each variety is a sufficient number."

Notwithstanding the resolution placed the whole duty of making the exhibit, and reporting the result, upon the committee, the secretary was a willing helper in the former, and a conscript in the discharge of the latter. Not having, therefore, expected to be called upon to report the results of this exhibition, I feel myself illy prepared for such a duty, since I kept no notes, nor even gave special attention to the details. I can say, however, that the experiment, for such it was, of making such an exhibit, although the fruit crop of the season was very light, was abundantly satisfactory to the State Board of Agriculture, and highly creditable to the society, while there can be no doubt but the interest of horticulture throughout our State was greatly encouraged. Contributions of fruit were received from eleven counties, and flowers from two. The number of plates of fruit from each county were:

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Cass county—Collected by L. B. Custer—plates of apples, 56; plates of pears, 7.
Clinton county—Collected by J. N. Armantrout—plates of apples, 14.
Clarke county—Collected by ——— plates of apples, 6; plates of pears, 2.
Gibson county—Collected by Robt. Mitchell—plates of apples, 32.
Howard county—Collected by Rawson Vaile—plates of apples, 29.
Henry county—Collected by Benajah Parker and W. H. Vance—plates of apples, 68.
Marion county—Collected by S. Johnson and others—plates of apples, 32.
Parke county—Collected by Eli Frazier—plates of apples, 59.
Perry county—Collected by F. M. Polk—plates of apples, 54; plates of pears, 8.
Putnam county—Collected by J. W. Ragan—plates of apples, 4; plates of pears, 5.
Vigo county—Collected by Lawrence Heinl—plates of apples, 96; plates of pears, 5.
Total number of plates of apples, 450; total number of plates of pears, 27.

In addition to the fruit, Granville Cowing, of Delaware county, contributed a beautiful collection of cut dahlias, fit associates for such a collection of fruit; while our worthy President placed upon the tables a crape myrtle and pomegranate in bloom. Mrs. Dowden, also of Marion county, an aged amateure florist, added very much to the beauty of the exhibit by donating an elegant design of cut flowers.

I regret that I have no data from which to give a complete list of fruits exhibited, as only one exhibitor seems to have furnished a list of his collections. But this omission is not a matter of surprise, as the fruit crop was so "short" that few individuals had large collections of their own growing, while the lists were generally made up by contributions, so that a large number of really unknown varieties found their way into the general exhibit. I append a list furnished by F. M. Polk, of Perry county, whose collection was par excellence the best, that region being favored by better crops than other sections of the State: Ben Davis, Rome Beauty, Winesap, Smith's Cider, Jonathan, Rawles' Janet, Gilpin, Roxbury Russet, Nickajack, Hays' Wine, Northern Spy, Yellow Bellflower, Pennock, Pottinger, Summer Queen, Rambo, McAfee's Nonsuch, Fall Pippin, Prior's Red, Hoop's New England Red Streak, Danver's Sweet, English Russet, Horse, Ortley, Maiden's Blush, Grimes' Golden, Stark, Willow Twig, Pumpkin Sweet, Kaigns' Spitzenberg, Jersey Black, Baldwin, Rhode Island Greening, Clayton, Carolina Sweet, Golden Russet, Campfield, Moore's Sweet, Tewksbury Winter Blush, Fall Queen, Broadwell, Welch Sweet, Fallawater; and of pears, Beurre Easter, Beurre Deil, Glout Morceau, White Doyenne, Duchess, Vicar of Winkfield, Sheldon and Napoleon.

The collection from Gibson county was also of uniformily good quality, while the selections from other portions of the State were surprisingly good, when considered in connection with the light crop of the season. The credit of the arrangement of the fruit for exhibition is mainly due to two members of the committee, F. M. Polk and L. B. Custer, assisted by our worthy president and a few other willing workers. I think the experiment of collecting fruits and other horticultural products by our Society, for exhibition at the State Fair, may be regarded as entirely successful in this instance, and well worthy of further trial in the future, although I would urge upon those contributing to, as well as those making such an exhibit, the importance of correctly labeling and listing for publication the varieties exhibited, with such other information as may be of profit to fruit growers.

I give below an itemized statement of expenses and receipts of the exhibition,

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which does not, however, include expenses of postage and printing circulars, which are shown in my general account with the Society:

Expenses and receipts of the fruit exhibition at the State Fair of 1877:

EXPENSES.

Paid expenses and other charges on fruits received	$56 66
Receipts from fruit sold	15 90
Total expenses of exhibition	$40 76

Dr. Allen Furnas suggested that instead of making an exhibition, the Society might do well in future to offer premiums to individuals. It was moved to appoint a committee to consider the question of making a display at the next State Fair. Carried. The committee consists of Dr. Allen Furnas, W. H. Ragan, and F. Beeler.

FIRST DAY.

EVENING SESSION.

The Society met at 7:30. President Johnson in the chair. The Committee on Nomination of Officers submitted their report, which was received. The officers for the ensuing term were elected by ballot, and are as follows:

President—Sylvester Johnson, Marion county.

Vice Presidents—First, Joseph M. Bulla, Wayne county; second, L. B. Custer, Cass county; third, F. H. Foust, Whitley county; fourth, Oliver Albertson, Marion county.

Secretary—W. H. Ragan, Hendricks county.

Treasurer—Daniel Cox, Hendricks county.

Executive Committee—J. C. Ratliff, Wayne county; Dr. Allen Furnas, Hendricks county; D. E. Hoffman, Randolph county.

President Johnson and Secretary Ragan each thanked the members for this renewed assurance of esteem and confidence.

The following paper was then read by Hon. J. C. Ratliff, of Richmond:

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EULOGY ON THE LIFE AND CHARACTER OF LEWIS JONES.

AN ESSAY READ BY J. C. RATLIFF, AT THE LAST MEETING OF THE INDIANA HORTICULTURAL SOCIETY.

Seventeen years ago, a few fruit men met at Indianapolis for the purpose of organizing themselves into a society whose object should be to develop facts and promulgate information pertaining to the science of horticulture. The first step in that organization was the selection of Lewis Jones, of Wayne county, for president. The organization was named the Indiana Pomological (now Horticultural) Society. This I speak of to show the connection which our friend and brother in horticulture had with its early history. A short sketch of his life, together with a few incidents, though some of them have but little bearing on horticulture, I trust will not be out of place on this occasion.

Lewis Jones was born near Charlestown, Kanawha county, West Virginia, in the year 1808. In 1815 he moved with his father to Indiana Territory and settled near Centreville, in Wayne county, where he resided during the remainder of his life. In 1822, being then about fourteen years of age, he carried the first United States mail on horseback from Centreville, the county seat of Wayne county, to Indianapolis, (then an Indian trading post), a distance of more than sixty miles, following a blazed path through the woods a greater part of the distance. This he did for about two years. Under favorable circumstances it required four days to make the trip—two to go and two to return—many times swimming his horse across the streams which had been swollen by heavy rains, taking the mail bags on his shoulders to prevent them from getting wet. On one occasion, being belated, he was chased some distance by wolves, before reaching his stopping place, near where Knightstown now stands; at other times, night coming on before reaching the "settlement," unable to see the blazed trees, he was compelled to go into camp, using the mail bags for a pillow, and on one occasion he was so near frozen by the extreme cold that he was taken from his horse in nearly an insensible condition.

In 1837 he commenced the nursery business by planting a small lot of apple and pear seed; he cultivated the cions with the best varieties to be obtained in the country. This business, however, was soon brought to a close by selling his farm. For a few years he engaged in the mechanical business, and it can be truthfully said that few men possessed more natural mechanical genius than he. His skill in the use of tools in shoemaking, carpentering, cabinet making and other kinds of mechanical business was really surprising.

In 1850 he again engaged in the nursery business. In a few years his catalogue embraced a choice collection, comparing favorably with older eastern nurseries. It was during this period of twenty years, following the above date, that he became noted as a fruit man. But few men have acquired such a reputation as he for the introduction of new and valuable varieties of fruit. By referring to Warder's book on Pomology, and Charles Downing's Fruits and Fruit Trees of America, together with numerous letters received from such men as John J. Thomas, Elwanger & Barry, Wm. R. Prince, and other prominent fruit growers, we can form some idea of the extent of his reputation, and the value of the different varieties of fruit which he has brought to public notice.

A prominent trait in the character of our friend was his liberality. It is conceded by all who were intimately acquainted with his business that he gave away all his profits—every person buying a bill of trees, with scarcely a single exception, must

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receive as a present some trees of new varieties. Several of us who are here to-day well remember the great roll of grafts of new varieties of fruit he would bring to the annual meetings of this society for gratuitous distribution among its members, and many no doubt have realized their value who to-day feel thankful for his generosity and cherish his memory. As a tribute of respect for his services, and for other personal considerations, this Society very properly recorded his name in its list of honorary members.

As the infirmities of age rendered him incapable of attending to active business, he devoted much of his time to "going about and doing good." Zealous in religious work, he felt at home in any and all religious meetings. On the twentieth of March, 1877, he passed peacefully away. Having lived beyond his three score years and ten, he was gathered like a shock of corn fully ripe.

This tribute to the memory of one of the pioneer pomologists of Indiana, was followed by the reading of a paper on

THE EDUCATION OF THE OBSERVING FACULTIES.

BY PROF. JOHN HUSSEY, OF PURDUE UNIVERSITY.

If there is any business which men pursue which is not helped by a cultivation of those faculties by which we know and understand what is occurring about us, I confess to you that I can not name it. But if we speak of the comparative influence upon the different occupations of men of the cultivation of the observing faculties, there is no doubt some room for difference of opinion. In some of the occupations of men, more than in others, does the highest success depend upon a ready and accurate interpretation of the phenomena about us. How much of our success in life depends upon our *interest* in what we do! If we analyze the thought which lies hidden in this word, we shall understand why and how some succeed, and others do not; we shall know what makes the many-sided man, who can do many things well, and what makes the narrow men, and the very narrow man, who can do only one thing, or perhaps not even one thing.

All our occupations can be summed up in two classes. In one fall those actions which link us with the on-moving panorama of history, by which we are made a part of, and by which we participate in social and civil life, not necessarily a part worthy of mention in the annals of our times, but still a part in history; in the other class of occupations we do that which most concerns us personally—we fill the limited sphere of labor by which we live. In these two sides of human life, in these two lines of human action—the civil and the personal—we have abundant opportunity to connect our own part with the tide of human life on the one hand, or the phenomena of existence on the other.

Our interest in what we do, or in the part we act, will depend upon that which links us to the world, to human action beyond us, or to nature within and without us. The same sky is over all our heads, the same glorious nature is before the eyes of all of us, the same incentive to action comes to all of us from the past, and the present and the future. History tells us all the same story; the facts of the present and the fears of the future, come to all alike. I do not say they are apprehended by all alike, for they are not, and let us inquire why are they not taken in by all and made a part of the life of all?

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Dismissing now the prejudices which a false education has made a part of our nature, and leaving out of view all those questions about which we can possibly differ, the sum of the whole matter of our own interest in our own work depends upon the more or less of intelligence which we have been trained to make use of in connecting our own lives and our occupations with nature about us, or man as an actor in history with us. Men are dull and listless in their duties because they do not think; they do not think because they do not observe; and they do not observe because they do not know how to observe—they have not been trained to it.

It would be but a truism for me to say that our age is peculiarly one in which a remarkable impetus has been given to education. And no less so to assert that whatever is peculiar in our age in reference to its educational work, depends upon its connection with the training of the mind in habits of observation—not in one line, but in many; not to build up one science, or one class of sciences, but to build up every science—for the basis of every science is observation of facts, whether physical or metaphysical; facts more or less tangible, but still facts.

Compare the age in which we live to that succession of ages preceding what is called the revival of learning—that age prophetic of the new ages, an epoch itself of discovery, foreshadowing the *par excellence* of discovery, the age in which we live, the proud age of the triumph and the culmination of human genius in invention and discovery. Compare these two periods in respect to the progress which mankind has made in them. In the one the human mind seems to have been bound, but the eyes of men were not blind; they saw, but they could not interpret; they racked nature, but they could not reason upon the facts they extorted. These were the ages of cultivation, of wrangling metaphysics, of barren logic; methods of discussion were perfected, material was deficient. That the success of those ages was inferior to that of this, is too evident to need the assertion. The very element in this which has given it the claim which it makes to superiority over those ages, is that this has discovered facts which those ages knew not, or has learned to reason upon facts the significance of which those ages overlooked.

But I do not desire to call your mind away from the present time, or from practical considerations to a discussion of general principles. That our age is one of discovery and invention does not imply that we do not need still to observe and to learn how to observe. All have not learned how to observe, though it is an age of discovery. Indeed many of us live yet in the dark ages—we do not see the facts of nature with which we are surrounded; we do not certainly know how to interpret them; we can not reason upon them.

We are now on the threshhold of an age when the inculcating of the habit of observing, with all it implies of reasoning correctly on the observed facts, is to become as universal as education itself. It is the new feature in education—not called new because now first discovered, but because now to be made a universal feature in the system of education, not to the same extent everywhere, but to some extent wherever schools are known. What I ask from schools of all grades is that a true method shall be adopted, that the method shall be adapted to teach how to observe; to educate the observing faculty rather than to multiply individual observations.

The importance of educating the observing faculties can not be overestimated, providing always it is done on a true plan. It increases the mental power the same as any other kind of education. The power to observe fully and conclusively is as high a power as the mind possesses, and it is as important an acquisition as can be made in the sphere of intellect. It implies the best, keenest use of the logical faculty; the highest use of the judgment; the sharpest discrimination between similar appearances of various bearings and significances, and it requires a perfect freedom from prepossession; its highest element is candor. It even seems

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that there is something more in the cultivation of the faculties under consideration than that which is purely intellectual. While I can not hold that one who interprets nature must commune with nature's God, I have been impressed often with the fact that an earnest student of nature has moral restraints thrown around him which the abandoned cast away. It certainly cultivates and requires some of the best elements of success to form the habit of inquiring of nature her secrets, and of reasoning correctly upon them—it is necessary in such pursuits to have an unwearied patience, a keen perception, a quick apprehension; it both requires and cultivates these intellectual habits.

I have said this much to vindicate the education of the observing faculties from any charge of being an inferior kind of education. If this kind of education is inferior, it is because it is conducted in an inferior manner, and consequently the best results possible to such an education are not received; it is because it is not pursued with candor or with patience or with keenness of logic.

Let me say here, there is no bad tendency in a system of education which has for its means the cultivation of the observing faculties. It does not lead to any kind of wrong doing, or to any pernicious error. Moreover, it is not narrow in its methods, nor limited in its processes; it applies everywhere and to everything. It has claims to universality—it is as applicable in the teaching of pschychology as of geology; of Latin as of chemistry. But it is particularly, I admit, applicable to the case of those sciences which are called natural; but more because these touch us at more points, and appeal more directly to the senses, than because the method is peculiar to them.

To observe is more than to see. There is an insight added to seeing in an observation—there is a going behind the scenes, a process of reasoning—it is a conclusion drawn from a syllogism with a suppressed promise. Two persons may see all there is to be seen with the eye in any matter, and while one sees nothing more, the other draws a conclusion, or by connecting the single phenomena with other previously known facts, falls into a train of entertaining and pleasing thought.

As far from being appropriate to the circumstances of this meeting as this may seem to be, I do not hesitate to say that it has an important bearing on a question near to each one of you of this Society. The question of making the life which you lead in your branch of agriculture one which will interest a cultivated man or woman, which will retain, invite and hold the restless and ambitious youth, will find its solution, if it finds it at all, in the cultivation of the mind in the direction I have pointed out to-night. There is an education which makes a man at home wherever he can see nature in her manifold forms of beauty. With other circumstances favorable, as they often are, with prepossessions and early associations formed in an intelligent country home, with an education of a high order in the line I have pointed out in this paper, there is no reason why for success, for culture and for the keenest interest there is in life, the home in the country should not retain its most capable, its most cultured and most ambitious youth.

Culture, however, will be found to be necessary; education will be found to be indispensable. What kind of an education will be the basis of the culture which will be content in a country home?

Draw out the power to observe and understand all those phenomena of nature which in life, in wild life, in unrestrained life, meet one in forest, field and stream. And here let me say that no less of an education will be found necessary than will satisfy in other walks of life. It must be a real education, a profound education, which will turn the tide from the excited but often unsuccessful throng which seeks our cities. Any mere training in the methods of your labor will never succeed; it must be culture no less thorough than the best, and infinitely better than the com-

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mon, culture of our city young men and women; for it must be a culture which, while not being unsocial, is independent and original. In distinction from that culture most common in cities, it must be thoughtful and able to entertain its possessor.

Prof. Hussey's address was warmly applauded, and elicited some pleasant remarks from President White: We should cultivate the faculties more. One man sees with the eye, another pays attention to what he sees. Some people see a grand picture; it pleases them merely, and they pass on. Another one sees it, and is entranced; so with all objects. It is not so much what we see, as the attention we give to what we see. I do not censure any one who does not observe the same objects as I do—people are different in taste; one may admire a picture, another a horse. We can not all interpret alike; but we should educate our faculties in observing those things which we take interest in. The person who gets the most out of nature, who extracts the most pleasure from nature, and the least of harrassing care, observes in a manner to insure happiness.

Hon. I. D. G. Nelson then presented the following report:

REPORT OF THE FRUIT EXHIBITION AT THE STATE FAIR.

To the President and Members of the Indiana Horticultural Society:

GENTLEMEN: The undersigned, Awarding Committee appointed to examine the fruit exhibited at the State Fair of 1877, after having discharged that duty and made their report, had their attention directed to a very extensive and fine collection of fruits which, upon inquiry, was ascertained to be a voluntary contribution to the State Fair, made through the instrumentality and under the direction of the Indiana Horticultural Society, simply for the purpose of adding interest to the State Fair, and not for the purpose of competing for premiums.

In view of the disinterestedness of this display, which added so much to the attraction of the State Fair, the committee felt the Board of Agriculture was highly complimented, and therefore entitled to special mention in this behalf.

The committee desires to say that large and handsome contributions were made from societies in the counties of Cass, Putnam, Henry, Parke, Howard, Gibson, Clark, Marion, Vigo, Clinton, Perry, and perhaps several others that may have escaped the observation of the committee.

Before the organization of the Indiana Horticultural Society, which is not many years ago, no person ever saw, at any of our State Fair exhibitions, a show of fruit that would equal in extent or quality that sent from any of these local societies, until within a very few years. Indeed, it is within the knowledge of this committee that the entire exhibition of fruit in the early days of the State Fair exhibitions, would not now make a respectable township show. In those days a small collection of poor varieties, most of which are now rejected altogether, constituted the display and carried off the silver cups. At the present time there is not a

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county in the State that has not a number of fine orchards, the fruit of which would make a splendid show at any State Fair—and the revenue now derived from orchard products in this State amounts to a fabulous sum, far exceeding the ideas of those who have not had the opportunity of being made acquainted with its magnitude. But its commercial aspect must not be alone considered, or as cutting much of a figure when compared to the luxury as well as health-producing qualities of well-ripened fruit. It is unnecessary to say that the apple is now considered indispensable to both health and comfort, and should be found at every meal on every table.

It will not be denied that the great and rapid progress that has been made in pomology in this State is due mainly to the diffusion of knowledge in fruit and fruit-growing, through the medium of the Indiana Horticultural Society. The transactions of the society have been published annually, and are eagerly sought after by fruit-growers and others in and out of the State. The single article in the transactions designated as the "Star list," serves as an invaluable guide to those wishing to set out an orchard, and has been worth hundreds of thousands of dollars.

In view, then, of the advance that has been made through the medium of the Indiana Horticultural Society, in horticultural science, it should be a source of no small gratification to those who have contributed to this noble work, to know that their efforts have been crowned with a success thus far that could not have been reasonably anticipated, and that it will stimulate still further efforts in the same direction.

All of which is respectfully submitted,

D. E. HOFFMAN,
A. FURNAS,
I. D. G. NELSON.

PRESIDENT JOHNSON—Wanted to know if one thing suggested in the paper just read was a correct rule; was it right to have apples at every meal, especially for tea?

DR. FURNAS—I believe that mankind would be stronger and better if they ate more fruit. It is recorded a certain surgeon in the army observed that those men whose diet had been fruit and vegetables were more healthy, and could be more successfully treated, than those whose diet had been principally meats. It is said we are becoming an enfeebled race. Our foreign friends are stronger.

The German and Irish peasants who come among us, and perform so much hard labor, are stronger than we. What is the reason? I am willing to have a vegetable diet more and more. Let us eat more fruit and more vegetables, and build up better blood and better constitutions.

W. H. RAGAN—Had been taught when a child that "fruit in the morning was like gold, at noon like silver, at night like lead." Thought it could not be laid down as a rule that fruit should be eaten at night. Horticulture was a healthful occupation, and the good health of those engaged in it, whether in this or other countries, may have as much, or more to do with strength than diet.

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PROF. E. E. WHITE—We can not lay down any rule in regard to diet: the appetite has much to do with it. Back of the appetite lies the intelligence for food. It is true, the appetite must be educated aright. You can not find a more stalwart race than the Britons, and they are a nation of meat eaters.

DISCUSSION ON THE GRAPE.

DR. FURNAS—Stated that all the grapes on old vines at the time of the rains last season decayed. Six years is old for grape vines; may count on a good crop from vines four years old. About the time the berry is mature, if a rain comes, they will rot. The delicate varieties are especially affected by wet weather.

MR. OHAVER—I would like to understand what it is: whether mildew, decay, or the circulo. I notice first there is a white spot; in time it grows dark. I used to succeed with the Isabella and other kinds. I had Concords against a wall with all advantages, but all have failed. I let the Clintons grow as in a wild state, but last year they were a complete failure.

J. C. RATLIFF—I have never known such a complete failure as in the last year. What shall we do when we want to plant a vineyard? The Concord is now failing. I confess that I do not know the cause. Locality has something to do with it.

PRESIDENT JOHNSON—Has any one seen the Ives Seedling rot?

DR. FURNAS—Yes. A gentleman of my acquaintance does not cultivate, another uses ashes around the roots of his vines, another cultivates; all succeed. They are all in sight of my friend Ohaver, and his grapes rot. Have seen the Ricketts grapes, with their thick leathery leaves that will not get sunburnt; they in time, when they get cheaper, will take the place of other kinds.

W. H. RAGAN—That characteristic of the leaf prevails with all the varieties of the Ricketts grapes.

D. E. HOFFMAN—Have had good success with the Anna and Concord.

W. H. RAGAN—Said, in answer to a question concerning the Eumelan grape, that it had gone "where the woodbine twineth."

Considerable time was spent in discussing grape pruning, grafting, etc., Dr. Furnas illustrating his methods for the benefit of the students who were present.

Adjourned to meet on Wednesday at 9 o'clock A. M.

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SECOND DAY.

MORNING SESSION.

The Society met pursuant to adjournment at 9 o'clock, President Johnson in the chair. A number of delegates had arrived since the opening session, and a good audience was present. All the students who could be excused from their lessons were present at this and other sessions. Eleven o'clock was the time appointed for the paper by Mrs. Haines, and Prof. White dismissed the students at that hour in order that they might be present to hear it. Immediately after the opening of the meeting the Secretary submitted the following paper:

OUR HOMES.

BY WM. B. FLETCHER, M. D., OF INDIANAPOLIS.

When man was from the garden driven, and sought a home in the wilderness, there was one thing of which his benificent Creator did not deprive him, and that was the memory of the beauties of his first home. Perhaps, too, it was a part of the punishment that he should have constant reminders of the music of birds, the cadence of gently falling waters, the grateful shade of the grand old trees, and the perfume of exquisite flowers. When he compared the cold ungenial world, the howling beasts, and the growing thorns, with his first abode, and remembered that no fruits would drop into his hand from the bounteous stores of Eden, no tempered air or leafy canopy protect him from poisoned dews of night, and yet again recall the curse, that by the sweat of his brow he should eat bread, he felt within him a desire to restore, as far as possible, the comfort and beauties of the lost home. As some poor prodigal, who had abandoned a palatial abode, wandering in foreign lands, where necessity compelled labor and reformation, he is forced to erect the barest shelter as protection from winter wind or wandering foe, and would fain reproduce, even in rudest form, a likeness to the home far away. In dreams he re-visits it. The shady walks, pleasant arbors, sweet-scented jassamine and familiar rose, are once more his own, and with delight he listens to the sound of his footstep along the halls and shady porches. The dream inspires his waking hours—like a mother's remembered face and word of love, it makes him a better man—and he would fain build for himself a dwelling worthy to be so loved by his own posterity. Those crude philosophers who have taught us to believe that our first parents were wanderers or dwellers in caves, gave no such good reason for the home instinct that pervades mankind, as we are forced to feel from reading the history of man's first creation in the Sacred Scriptures.

But the investigators of pre-historic man do not deny that even in the rude caverns of Briton, and lake dwellers of Switzerland, did not only have a fixed abode, but tried to make the same a place of comfort, and left the mark of rude adornment. Of this we have evidence in the huge pile of shells on the lake shores, where they must have dwelt for ages, in the rudely carved utensil picked up from time to time, and in the smoothed walls and sculpture of the rugged rocky caves, inhabited by the worshippers of Thor.

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The rudest tribes known have always manifested something within the heart that separates him from all other species, and leaves Darwin to show a single instance where any other animal ever attempted to deviate from fixed plans of structure for dwellings, and manifested a leaning towards decorative art. The rudest beings have not only built structures, but have endeavored to add to them something more than the necessities of protection. The graceful twining of the vine, the symmetrical form of plants and leaves attract, and are brought into closer proximity to his habitation. His clothing he colors to imitate the flowers; he carves upon his war-club the head of an animal; decorates his bow and arrows with twining serpents; thatches his hut with various colored leaves and grasses, in warm countries, and weaves mats with geometric designs. Or in the north, pictures upon the skins which form his abode and his clothing, curious delineations of birds and beasts. They are the gradual work of his hands—they are adornments that convey a personality—and are handed down to his children for imitation, thus leading to accumulation and fixed abodes. One house constructed with regard to natural beauty of locality, would lead others to the same place—man being a gregarious animal. The spirit of imitation would soon result in a village, each dwelling similar, yet differing according to the individual taste of the owner. Peaceful emulation would follow, superior ability be cultivated in succeeding generations, and at last, from the rude dwelling of primitive man, with his God-given remembrance of Eden, a city is built, populous and noble in proportions. The hut and cave have given rise, in ages of time, to massive walls and sculptured towers and battlements.

Gardens, grateful shades, and sparkling fountains, spring up in the wilderness, and man has, to a degree, a dwelling-place of comfort, adorned with fittings to satisfy his innate love of Eden's beauty—as evidenced in the ruins of the cities along the Nile, on the plains of Babylon, or in the sculptured columns of America, which give alone the fragmentary tale of the homes of the Incas and the Taltecs.

HOME A FIXED ABODE.

No American has ever wandered of a bright May morning along the lanes and hawthorn hedges of old England, through the villages, and past the stately mansions, but said in his heart, "truly this is a land of homes." And the same feeling comes again when the homely thatch of the cottage is covered with snow, and the mansion and park are dimmed with the rain and sleet. There, at a glance, we see the abodes of the rich and the poor, but alike, they seem to present a most inviting aspect of comfort and repose.

What is it that gives to England the attractive appearance that excites at once our admiration and respect?

Is it not because we find this mansion house or castle dates back two or three hundred years and more, and the ivy clings to the walls like a copse, and the majestic oaks and elms spread their giant branches far higher and wider than our forest trees, and we call to mind that the generation which has long, long mingled with the dust, built the house so quaint and old, and the giant trees were planted by their hands as little twigs, and the father and son, mother and daughter, their descendants, generation after generation, have lived in the house and sported in the same shade to the present day? In the mansion, too, we would find portraits of the various antecedents in their massive, carved oak frames, overhanging the wainscotting, black with age, telling of the architecture of whilom days. The sideboard is filled with the curious old delft or china relics, Indian fans of quaint design—all, perhaps, associated specially with by-gone times and people. But the cottage

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is no less a home—the rough walls of unhewn stone give good foothold to the vines which group themselves in graceful festoons under the eaves—where the swallows have built for a hundred years or more. The thatch may have been replaced by the curious red tile within the last decade, if it be the cottage of a well-to-do farmer—or else we find the whole roof of straw covered with bright, green moss, which is no less picturesque. On the two high-backed, oaken benches under the stoop the cottager's ancestor sat and smoked his pipe in the days of Cromwell. The roses bloom, and the old-fashioned hollyhock grows by the window—and the little child that sits on her grandfather's knee shares already with her parents love and veneration for the old cottage, and and all these time-honored associations will influence her own life and that of her descendants.

It is the Homes of England and Germany—their permanency—whether simple or elaborate—that has created the two strongest nations in the world.

HOMES IN AMERICA.

It has been said by some foreign critics that homes are unknown in America—that no man has a farm or residence he would not willingly part with for an *advance.* This, we must acknowledge, is partly true; and it is one reason why our love and respect for home is so much less than that which characterizes the old-world people; and one reason, too, why the influence of home is so soon cast off by the rising generation. If there is anything on earth that is utterly destitute of external home attribute it is the conventional large frame house situated in the country, divested of all delightful country garniture, often not even a single tree to relieve the barren waste. The roof without eaves, closely clipt gables, flat, shadowless windows—a thin door with its meager, uninviting entrance, unprotected by a porch—all surrounded by a rail fence.

And yet such a home would present all the requisites of a dwelling place. Not, however, one that would cling to the memory of a child, born and reared there, with fondness and longing in after years. Even after that grand old art master, Time, has blotted out the newness with soft mosses and silvery lichen; casting the friendly shade of trees about its nakedness; replacing the unsightly fence by a hedge—it would require all the might of interior association, both joyous and sad, to constitute such a spot the heart's ideal home.

Different would be the feeling toward the true home of the forest—the unhewn log house, with its broad clapboard roof, held by moss-covered weight-poles projecting far beyond the walls—its low but massive door, swinging cheerfully upon great wooden hinges, and the latch that goes up with a rattle of welcome. Small windows set deep in the great logs, and the huge fire-place betokening warm hearts and good cheer. The low, spreading beech and tall, graceful elm, seem part and parcel of the homestead, through which are seen fertile field and meadow to the woodland's "leafiness profound." Near the door a great stump has been left for a horse block—the wild rose climbs up the great rude chimney, and the orange gourd twines round the roof, hiding the nests of the peewee and swallow. Within all is simple but strong. The dry, naked puncheons, guiltless of carpet, are clean, and show the beautiful wood grain more perfectly than art can accomplish. Withal, it forms a picture for memory's pleasure which the "new frame house" referred to forever would lack.

Having considered, first, that which gives rise to adornment and Home instinct, we will glance at the various methods of adorning the chosen spot to which we apply the name of Home.

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There are three kinds of homes to be considered: the city home, suburban and country homes; but for the sake of the requisite brevity of an essay, we must confine ourselves to the examination of the question rather as it pertains to the medium and well-to-do class, than to the extremes of rich and poor. We take it for granted that few persons associate the idea of *Home* with rented houses, and therefore conclude that the Home must be an abode belonging to the occupant.

Of the city home there is little to be said in a general way about its locality. The building, whether it be of brick, stone or wood, depends upon its architectural fitness for becoming a residence of pleasing or inviting aspect, or one that is repulsive from its garret to cellar. Grass, green, close-cropped and smooth, should prevail in all the yard, whether large or small, and as many of the time-honored rose-bushes as can be impressed into borders. The effect of native trees, shrubs and vines is always beautiful where there is space, and a vine, whether grape, Virginia creeper, or woodbine, twining about the porch or trellis, is "a thing of beauty and a joy forever." But crowding shrubbery close to the house adds neither to its handsomeness or healthfulness—the sun ought to strike every part of the house at some period of the day. When there is lack of sunshine upon the house, its walls will be damp, and the shade will become the breeding place of mosquitoes and other insect pests, as well as of ague and various malarial diseases.

That a house should not have too many doors leading from the outside, is a matter of great convenience, as it is so much easier to bolt and lock one door than many, and also as a preventitive of cold in winter. A front door may be made a most pleasing and effective ornament. It should always be placed at the end of an entering recess, and not present a flat, unbroken line with the side of the house. Over the door projects a porch—wide and free—supported by pillars, sculptured marble, plain stone, nicely joined wood, or, even for the rustic cottage, the well-selected trunks of the dog-wood, cedar, or water bush—according to the wealth of the individual, and in taste with the style of the house. That a porch gives the same finish to a house that a well-formed eye-brow does to the human countenance, is an old observation.

The inner rooms should open into the hall leading from the front door. This hall should have no carpet, but be made of nicely joined strips of black walnut, oak, ash or other native woods, properly waxed and oiled. A mat, home-made, and at end or side a hat stand. This, too, should be made of unpainted, unvarnished American wood, and may be elaborately carved, or simply a hanging board furnished with pegs, the whole of home manufacture. Let the hall be well lighted, and favorable to the display of pictures. For the home of wealth these may be fine oil paintings or costly steel engravings; but for the cottage, a few pleasing scenes from our pictorial papers will give a good effect, and be far more profitable suggestion to the mind than that most barren object—a bare white wall. Colored prints with gaudy tints and deformed figures should never be displayed. To paper a low ceiled hall, choose columns or narrow stripes, running perpendicularly of course, to increase the effect of hight, which is also achieved by eschewing bright colors, choosing instead dull lead, buff and neutral tints. In wealthier homes, where the expenditure of money is not a material consideration, walls are best painted in the same soft neutral tints. When the ceilings are painted in fresco, the artist should use but few positive colors, describing narrow lines of geometric design, rather than the florid picturing landscape and flower garden, lavish displays of fruits and vegetables, which, of course, are obviously and absolutely out of place. Of the various rooms in the house, we can only generalize, but I would advocate strongly dispensing with carpets in bedrooms and nurseries. They are abominations for absorbing

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and secreting uncleanness, promoters of disease, and their use uniformly through the house is peculiarly American—as much so as their fondness for pickles, hot biscuits and airtight stoves. Let the same money be spent in laying a smooth floor of pine or ash, and then a second floor of woods in different colors, shaped into tatseful patterns and designs; then would we have a warmer floor, and one that would last from age to age, if occasionally oiled and waxed—a floor absolutely clean, which can not injure health or temper. Many of the most beautiful figures are fitted in cedar, black walnut, ash and pine, and when polished make the floor appear as if carpeted with a richly colored pattern in silk.

Of the furniture of the various rooms, home adornment would indicate a few simple rules—solidity, perfection of workmanship, simplicity of pattern and variety in shapes. The chairs we see in old English houses, or those made by early workmen in our own country, have given way to the thin, feeble, upholstered trash of the present day, and few children of the coming generation will even see a piece of furniture that was made and used in the days of their fathers. Chairs should not all be alike. Some people are long, some short, some heavy; and chairs of various kinds, well made, give pleasing variety and added comfort.

Of bedsteads, the same might be said. If for a cottage home or other, native wood with strong frames, or the same carved in solid material, will produce a useful piece of furniture for the wealthy, that will be remembered with true home respect by the children, and handed down from generation to generation.

Of pictures to adorn a room, whether painting or engraving, let them be pleasingly suggestive in design and harmonious in color, of a character to add to real *adornment* of home. They should be hung by wire or cord just long enough to attach to the nail in the wall—the long cords and tassels used to suspend paintings of small size from the ceiling are in bad taste. The frame should never be so elaborate and gaudy as to attract the eye from the picture, and sometimes the frame and hanging are of more value than the picture itself. Family portraits of parents, deceased children or absent friends may be tolerated, but to have the walls covered with photographs of oneself and family smacks of egotism. The picture, of whatever kind, should be of the most cheerful character. Death-bed scenes, painful Scripture subjects, should never find place in a private dwelling. Neither do battle scenes, no matter how important or distinguished the period of history they commemorate, suggest happy thoughts in the beholder. Frames ought not to be very costly unless richly carved. The most beautiful frames may be made from the variety of our native woods, simply oiled—thereby adding a feature of natural beauty to the pictures they surround. But frames must not be alike for all pictures. The oak, broad and deep, for portraits in oil or an historical piece; a light one of ash for a wreath of flowers. Warm tints are thrown over an engraving by the wild cherry wood, while the black walnut gives effect to landscapes in oil, where gold and green prevail. The locust and buckeye are applicable to others. Also the ironwood and dog-wood have claims upon our consideration for artistic purposes. These ought to be more thoroughly developed, and a good carpenter should construct such frames at a reasonable cost.

The fireplace, in the adornment of home, should receive special attention. It is the spot around which cluster our earliest and dearest memories. Of course, for health and comfort, as well as the adorning feature of home, a fireplace, wide and deep, with great brass andirons, were preferable. Next best comes the grate, the mantle to be of good plain hard wood, well seasoned by years and browned by smoke. Here, too, is room for the highest development of ornamental art, should wealth permit. The elaborate carving of the sides, the bas-relief in front bring

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objects to the eye of pleasing character, and it thus becomes a place of beauty as well as a locality of cheer.

Of the living rooms, a parlor separately, we can say little. They must come under general rules, unless a special house and special amount of money be in view for their adornment. Curtains should give place to inside shutters of unpainted wood. They are more effective, more economical, and do away with the large amount of dust and poisonous gasses which curtains, like carpets, collect and retain. If these can not be had, plain light grey shades are most pleasing to the eye.

But the most priceless adornment of a clean well-ordered home is sunlight. Let it flood the rooms daily, let it penetrate to every corner, and it will bring health as well as cheer.

The wood-wook of a dining-room should not be walnut, but ash, maple and cherry, or all these in combination. They are not so dull and heavy as the dark woods.

The library, if a separate room, should be cheerfully lighted, and decorated with suitable pictures, finished in dark woods, to correspond with book-shelves and paneling. Carpets should not be in a library—the dust which they harbor is injurious to valuable books.

Much beauty may be given to rooms by a variety of brackets, vases, and objects of natural interest. These, like pictures, should be frequently changed, to break the monotony of the scene. And the same would be suggested of flowers, which add greatly, in winter at least, to the beauty of home.

REPORT OF D. E. HOFFMAN, DELEGATE TO ILLINOIS STATE HORTICULTURAL CONVENTION.

As delegate to attend the annual meeting of the Illinois Horticultural Society, held at Ipava, Fulton county, December 11, 12 and 13, I present the following items of the proceedings at the various meetings at which I was present. The first meeting, as usual, was simply of a social character, and nothing of general interest was presented before the meeting until the President read his annual address, which was full of valuable hints, and a reference to the Industrial University brought out an interesting discussion, eliciting much valuable information in relation to the University and its relation to the agricultural and horticultural interests of the State. The University has now been in existence some ten years, and from the discussions it was evident that they had made a wrong start by requiring students to be so far advanced before they could gain admission, as some of the requisites were a fair knowledge of the Latin and Greek languages, which, it is well known, are not essential for successful farming or fruit culture, however desirable and necessary they may be for the successful pursuit of the higher branches of the sciences. But on the whole, it was claimed that the management of the institution has been greatly improved, and promises in the near future to fulfil its mission and be what its founders aimed at—an institution devoted to the instruction of agriculture, horticulture and the mechanic arts, and a good state of feeling existed between these mutual workers for the interests of the Prairie State.

Prof. Thomas, State Entomologist, delivered an instructive lecture on the climatic influences on the production and multiplication of insects, claiming that dry seasons were more favorable for their increase, and that the destruction of the forests on the various parts of the earth is the cause of the many favorable conditions for

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the rapid increase and development of insect life. He gave figures which showed the timber area of the earth as insignificant and small when compared with the cleared and barren regions, and from careful observations he claimed that by the destruction of our forests we decreased the amount of rainfall, and thereby produced the many favorable conditions for the rapid increase of our insects.

Prof. Riley agreed with Prof. Thomas that dry seasons are more favorable for the development and increase of insects, but did not believe that the evidence produced was sufficient to prove that the destruction of the forests would cause a decrease of rainfall, nor would tree planting be likely to increase the amount of rainfall; still he claimed that forests have a visible influence on its distribution, and by planting trees might, in many cases, help to produce a more desirable distribution of moisture.

Dr. J. T. Stewart also read an able and lengthy essay on the climatic influence by the wholesale destruction of the forests; after which a general discussion followed, which brought out many observations made by the speakers as the probable causes of the drying up of so many lakes, creeks, and springs; and most all the remarks pointed to the destruction of the forest area, and the breaking of the prairie, and consequent destruction of the rank prairie grass which used to cover the county and preserved a large amount of moisture. Arthur Bryant asserted that he has made observations for forty years in the county he lives in, and knew that the timber area had been decreased to less than half it was when he first moved there, and the seasons were dryer and drouths more frequent. And there are evidently some other causes, to which some of the speakers referred, which aid and may have some connection with the difficult question then before the meeting. Ex-President Hammond had an interesting essay on "Contempt of our Young Men for the Labor of Tilling the Soil." The speaker handled the subject in a masterly manner, showing that the course pursued by many otherwise good farmers, who did nothing or but little to make their homes attractive, nor the surroundings comfortable, were in a great measure responsible for the hatred manifested by the boys to the life on the farm.

Prof. Riley delivered a lecture on the "Larval Characters and Habits of the Blisterbeetle belonging to Genera Macrobasis and other species of the Family Meloidæ," in which he gave a very interesting and detailed description of the larval habits of the several species that are common in the United States, and stated that while digging up eggs of the Rocky Mountain locust he discovered that the larva of the common blisterbeetle (*epicanta vittata*) and the margined blisterbeetle, so common on the potato, were parasites feeding and developing on the eggs laid by the different locusts, which accounts for the fact of the potato beetle being more numerons and injurious to potatoes in years that have been preceded by dry falls, during which there had been much locust injury and necessarily unusual locust increase. He also described the habits of the Rocky Mountain locust, and gave assurance that we need have no fears of its unwelcome visits to this part of the country. He described the grape phylloxera, and stated that it lived on the leaves and roots of the vines, and was not the cause of the rot of the grape, as attributed by some. And he was satisfied that grape rot was a fungus disease, the origin of which he as yet had not had time to investigate or discover. To the habit of the codling moth he alluded, and thought that the larva might be destroyed by poisoning, as it always formed a surrounding from the substance under which it hides.

The flat-headed appletree borer he described, and exhibited the eggs, which showed them to have been deposited slanting under the bark at or near the ground and he had some faith in some of the alkali washes he recommended in some of his

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former lectures. But Mr. Robinson, the President of the Society, stated that he had a great deal of experience with the appletree borer, and found that the knife was the only successful remedy.

The blackberry rust was discussed, and the destruction of the infested plants recommended. The Snyder blackberry was indorsed as being hardy, productive and free from rust. Pear culture was evidently at a low ebb, as a lengthy essay was read on blight, which, however, contained nothing new of a practical character, and from the discussion nothing was offered to show that any of the enthusiasm which ran so high in by-gone days remained. D. B. Weir, the victim of 4,000 trees, retires from pear culture in disgust. Arthur Bryant, the veteran horticulturist, in fifty years' trial, has never made it pay.

The fruit on exhibition consisted of some fifteen varieties, some of them very fine, but most of them are not on the star list for this State. Some specimens of Ben. Davis and Wine Sap were remarkably fine. Mr. Galusha exhibited a new variety called Triumph, which was rather a showy apple and of good quality, of a mild, sweet flavor, which to many may be an objection.

The attendance was not so large as in former years, but the proceedings were harmonious and instructive, and the State of Illinois may well feel proud of the material which composes its Horticultural Society.

D. E. HOFFMAN.

DISCUSSION ON MR. HOFFMAN'S REPORT.

W. H. RAGAN—I fully indorse the closing clause of Mr. Hoffman's report. Their papers are of a high order, valuable and scientific. If they started out wrong with their University, may we not profit by their example, in the management of our State Agricultural College.

J. C. RATLIFF—Mr. Ragan speaks my sentiments of our friends over the line. I was much impressed with remarks made by Dr. Hull on one occasion: "We are using your Indiana timber, and after awhile we will sell you forest trees." I was in hopes our trees would be spared. It is time that we take measures to protect our timber. Nebraska is planting out forest trees. Cutting away the forests, thus drying up our springs, brooks, and streams, the wind sweeping over the country makes the land dry and sterile.

The Secretary then read the

FRUIT REPORT FROM THE SIXTH DISTRICT.

BY BENAJAH PARKER.

The result of last year's fruit crop in the Sixth District differs very little from other districts in the central portion of the State. Apples, the king of fruits in Indiana, were a short crop; the summer and fall apples being the best in quality and the largest yield, filling their place for comfort and profit in a full average. Our winter apples did not do so well. They were small in size, and imperfect and

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knotty; did not ripen and color well with us, some varieties rotting badly on the trees. The Vandevere pippin might be mentioned as being bad this year in every situation in which I have found them, rotting in sunshine and shade. All other varieties, when gathered, rotted badly, the Wine Sap keeping best of any I have noticed. The Belleflower, an old variety, a sparse and shy bearer with us, bore a plentiful crop of fair apples, and are keeping better than most other varieties this winter.

Of small fruits strawberries came first, with an average crop of fruit, with less price per quart than ever paid in this State for years, if ever before.

With us, raspberries were a short crop, and brought better price than strawberries.

Currants failed on account of the late frost.

Blackberries, in our portion of the State, were badly injured by the cold of the preceding winter; the canes were either killed or weakened so that the fruit crop failed, with the exception of the Snyder and the Taylor's Prolific. The Snyder did well; was not injured at all by the cold, and bore a fine crop. The Taylor did well in most situations; can say for the Snyder it has not been winter killed on my grounds since I have had it in cultivation; every year has brought full crops of good fruit.

Cherries and grapes failed on account of late spring frosts killing the blooms.

The past summer in my section of the State has been favorable for producing the growth of wood in our fruit trees and our small fruit. The fall being late, the wood is matured and well hardened up, and now, at the middle of December, have had no severe cold to injure our most tender fruits. The prospect of a general crop of fruit for another year could not be more flattering at this time than under present circumstances.

Horticulture in the Sixth District may be making slow progress compared with agriculture, yet horticultural products are getting to be more in demand each succeeding year. There is scarcely a home in country or village that has not its ornaments in shrubs in its door yard and surroundings, with hardy flowering plants in every sunny nook and corner, also flowers in the house to cheer and beautify the home.

In conclusion, would say the people of the Sixth District are endeavoring to raise more and better fruit, plant more shade and ornamental trees, more shrubs and flowers each succeeding year, and are more comfortable and happy for their labor.

REPORTS OF LOCAL SOCIETIES.

(NOTE.—*For reports in full, see appendix.*—SECRETARY.)

J. C. RATLIFF made a verbal report for the Richmond Society. We have adopted the plan of holding our meetings at private houses, especially during the summer. The social feature in our society is rather remarkable, has been productive of much good. We have some excellent essays. At one of our meetings at the greenhouse of L. B. Case we had a splendid display of flowers. We exchange meetings with our Dayton friends. We met last June at Mr. Nicholas Ohmer's, and had a delightful reunion. I like the social feature of our society.

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JOSEPH GILBERT gave a verbal report of the society at Terre Haute: We have a good society of thirty or forty members. Our members attend regularly, are punctual. We have regular reports and essays and have small exhibitions. We meet in strawberry time at a strawberry grower's; in raspberry time with a raspberry cultivator. We discuss other topics besides horticulture, religion, politics if we choose; do not confine ourselves strictly to any one theme.

Mr. D. W. DAVIS, Plainfield: We have a programme made out for the year. Our meetings are interesting, both socially and intellectually. We keep up the interest of our society, and have no idea of giving up.

MR. BEELER, Indianapolis—There was some years ago a society at Indianapolis. It is difficult to get the practical horticulturists, the working men, to attend.

DANIEL BULLA—Liked the social feature of the local societies.

W. H. RAGAN—In regard to local societies: there is no class of meetings that have a better influence upon our children; we mould the character for future good. With us it is a social affair. We take our baskets and all unite in a social meal, not expensive, but good and plain. We find that the member where we meet is benefitted; he trims up his grounds and gets ready to receive visitors. It is a benefit to him, for we are all too apt to grow careless and let things pass day by day.

L. B. CUSTER, Logansport—We would like to have a society, but would be afraid to try it, for fear of a failure. It is difficult to keep up the interest of a society. And then there is a difficulty in getting people, who have not been used to meeting and comparing notes, to tell what they do know. They seem to be afraid somebody will find out something from them.

D. E. HOFFMAN—Some of us remember that several years ago, the Illinois Society appointed meetings, and hired such men as Dr. Warder to address the people, and awaken an interest. We need to have missionary work done in localities where there are no organizations.

Several members expressed themselves as feeling the great necessity there was for the formation of local societies all over the State, where none already existed. This discussion was followed by the

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Report of W. H. Ragan, delegate to the American Pomological Society.

AMERICAN POMOLOGICAL SOCIETY.

SIXTEENTH BIENNIAL SESSION, HELD IN BALTIMORE, MARYLAND, SEPTEMBER, 1877, BY W. H. RAGAN.

At the last annual meeting of this Society, our afflicted friend and fellow-member, John A. Mendenhall, and myself, were appointed as delegates to the meeting of the American Pomological Society, to be held in September, in the city of Baltimore. Unfortunately, his physical condition was such as to preclude the possibility of his going, a fact which no one regretted more than I.

It has been the highest ambition of my life to attend a meeting of this continental association of fruit growers—an organization embracing the whole territory of North America, and including the leading pomologists of the land in its long list of members. This ambition was gratified on the assembling of the sixteenth biennial session in the city of Baltimore, in September last.

At 10 o'clock A. M., September 12, in Concert Hall, in the Academy of Music, Hon. W. C. Flagg, of Illinois, Secretary of the Society, called the meeting to order, and announced the absence, on account of sickness, of President Wilder, after which C. M. Hovey, Esq., of Boston, and Vice President for Massachusetts, was called to the chair.

The following is a partial list of members who responded to the call of the roll, and which, it will be seen, embraces many of the most noted horticulturists of this generation:

Wm. Saunders, of the Department of Agriculture, Washington, D. C.; Henry McLaughlin, of Maine; W. Gordon, Merrick Eklober and J. Patterson, of Lynchburg, Va.; P. J. Berkmans, Thomas P. Janes, J. S. Newman, S. P. Jenkins and Samuel Hope, of Georgia; Professor J. Brainard and J. E. Snodgrass, of the Potomac Fruit Growers' Association; Wm. Watson, of Texas; W. H. Ragan, of Indiana; Alfred Bridgeman, Charles Downing, D. A. Scott, C. Gilbert Fowler, T. S. Force, J. H. Ricketts, A. J. Caywood, E. P. Roe, Rev. Dr. Forsyth and Thomas Hogg, of Newburg, New York; Robert Buist, Robert Scott, James Ritchie, Josiah Hoopes, W. L. Schaffer and J. E. Mitchell, of Pennsylvania; Emmor Roberts, Dr. George C. Brown and Wm. Parry, of New Jersey; Silas Moore, of Rhode Island; G. B. Brackett, of Iowa; Josiah Hoopes, G. B. Thomas, Thomas Meehan, Calvin Cooper, H. M. Engle, W. L. Schaffer, A. W. Harrison and E. J. Evans, of the Pennsylvania Fruit Growers' Society; Captain Joseph R. Spratley, W. S. Butt, J. R. Ludlow, George E. Cromwell, Albert Dodge, G. F. B. Leighton, W. F. Bradbrook, J. L. Babcock and G. W. Briggs, of the Norfolk Horticultural and Pomological Society; George Balderston, John J. Carter, Marcellus Cook and Taylor P. Brown, of the Experimental Farm Club of Eastern Pennsylvania; William H. Yeomans, of the Connecticut State Board of Agriculture, and P. M. Augur, W. H. Barnett, F. Trowbridge, H. H. Smith, D. A. Lyman and T. S. Gold, of the same Board; Charles M. Hovey, R. Manning, John B. Moore, B. G. Smith, J. W. Manning, E. L. Sturtevant, A. D. Capon, Amos Bates, H. McLaughlin and E. H. Luke, of the Massachusetts Horticultural Society; J. P. Trimble, Professor Taylor and Rev. Dr. Perry, of the New Jersey Cranberry Association, and H. M. Engle, M. D. Kendig and L. S. Reist, of the Lancaster County Agricultural Society. Also, George W. Campbell and Dr. J. A. Warder, of Ohio; G. Ellwarger and P. Barry, of Rochester, New York; D. O. Munson, of Falls Church, Ohio;

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Benjamin G. Smith, Cambridge, Massachusetts; Franklin Davis, Richmond, Virginia; O. B. Hadwin, Worcester, Massachusetts; Isaac Buschman, New York; Henry M. Engle, Marietta, Pennsylvania; Robert Manning, Boston, Massachusetts; George Thurber, New York; J. J. Thomas, Union Springs, New York, and E. Law Rogers, Baltimore, Maryland.

The treasurer, Mr. Thomas P. James, who was also absent on account of sickness, made his report, through the secretary, showing a balance on hands of $369.37, which was followed by the reading of the very able address of President Wilder. In referring to the work accomplished by the Society since its organization in 1848, with its flattering prospects at this time, President Wilder said:

"With the close of the present session the Society will have held sixteen conventions, and will have entered on the thirtieth year of its existence. Three sessions of the Society have been held in the city of New York, three in Philadelphia, three in Boston, two in Rochester, New York, one each in the cities of Cincinnati, St. Louis, Richmond and Chicago, to which will soon be added the city of Baltimore. These sessions have been marked by evidently rapid and most gratifying progress, both as regards the information acquired and disseminated, as well as by the improved workings of the Society and the character and usefulness of its publications. This progress has been essentially promoted by the holding of its meetings in distant cities of the United States.

"From this fact the Society has been called a national institution. But it is more than national. It is continental, embracing within its fold not only the States of the Union, but the British provinces on our borders. Its latitude extends over twenty-five degrees, and its longitude the entire breadth of this continent. Its area embraces almost every variety of soil and temperature, where almost all of the fruits of the various zones may be grown, from the apple of Canada, and the oranges, figs and bananas of Florida, Louisiana and California. Its field is not merely the American Union, but it is over the Continent."

Under the head of statistics, Colonel Wilder remarked:

"At the time of the organization of our Society, the cultivation of fruits for the market, or for exportation, was limited to a few of the older States. In Mr. Coxe's opinion the fine apple growing section was bounded by the Mohawk river in the North and the James river in the South. Fruit growing in this section was confined principally to apples and peaches; but very few of the latter found their way to the markets of the North, while strawberries and other small fruits were scarcely to be seen, except in the locality where they were raised.

"But now, almost every steamer from New York for Liverpool or London, in the fall and winter months, takes apples varying from five hundred to three thousand barrels. Shipments have been made from other ports, and as late as last May there were fifteen hundred barrels sent to England from Philadelphia. In December last, ninety thousand barrels of American apples were landed at Liverpool.

"The number of acres under cultivation, in orchards, vines and small fruits, is estimated at 4,500,000. The number of trees is estimated as follows: Apples, 112,000,000; pears, 28,560,000; peaches, 112,270,000; grapes, 141,260,000; total, 393,790,000. The estimated value of fruit products is: Apples, $50,400,000; pears, $14,130,000; peaches, $56,135,000; grapes, $2,118,900; strawberries, $5,000,000; other fruits, $10,432,800, making a grand total of $138,216,700; or nearly equal to one-half of the value of our average wheat crop.

"In Illinois very little fruit was raised, except for home use, until 1840, when, according to Mr. Flagg's interesting historical address before the State Horticultural Society, a new era in fruit culture commenced. Now there are 320,000 acres of orchards in that State. Mr. Parker Earle informs me that in a good season there

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have been sent from his station alone (Cobden) twenty-five car loads of fruit daily. Of strawberries, where scarcely any were raised sixteen years ago for exportation, within six or seven years the cultivation has increased at Cobden and vicinity to over one thousand acres, so that five or six car loads daily are dispatched to the various markets.

"From Georgia, Mr. Berckmans, President of the State Horticultural Society, writes as follows of the late exhibition of this Society.

"'Many of our people of intelligence were amazed at our progress. The exhibition of fruits was grand. I am safe in saying that the display of peaches was never surpassed, if equalled, in any place in the past. I had fifty-six varieties of peaches, all ripe and in perfection; others had collections almost equal in number, and several surpassing in size. Many had peaches measuring twelve and one-half inches in circumference. The grape show was almost equal to the peach exhibit. Upward of fifty varieties were exhibited. Some wonderfully fine Concords were shown, which weighed one pound to the bunch. Pears were fine, but not so numerous as to varieties.' He had forty varieties in eating condition, which, together with the balance of his collection, made nearly two hundred varieties of fruits.

"The increase in the crops of apples in New York, Michigan and the more western States is wonderful.

"From New York it is estimated that in abundant years one and a half million of barrels are exported in addition to those consumed at home, a single firm at Boston receiving from that State from 30,000 to 40,000 barrels of apples per year. In the best seasons, Monroe, Niagara and Orleans counties produce more than one million barrels of apples, and the value in one county is stated to be a million of dollars.

"Michigan is a great fruit producing State, and many parts of it fully up to New York. The crop of apples in this State is estimated by Vice President Lyon at $2,000,000 in value; peaches, $1,000,000, and other fruits, $1,000,000; or a total of $4,000,000."

The address continues by showing that it is not alone at the North, and with the fruits of our temperate climate, that rapid progress is being made in pomology, but that throughout the South and upon the far-off shores of the great Pacific equally flattering results are being attained with the tropical and semi-tropical fruits, closing with a brief reference to our increasing facilities for transporting fruit to market, to the numerous improved modes of preserving by canning, drying, etc., and to the ever increasing demand for the health-giving products of the orchard and the garden, concluding with the following eloquent appeal:

"Standing here as conservators of American pomology, enjoying as we do such peculiar privileges for research and discovery, let us use every effort to advance our cause by diligent experiment and observation, so that as we come up from session to session we may add something to the common stock of information, and thus develop for the good of mankind the rich treasures which our science has in store for the world. Thus let us work on, hand in hand, to scatter these blessings broadcast through the land. Others may seek for the honors of public life or the victories of war, which too often carry with them the recollection of wounded hearts and painful disappointments. But let us continue to work on, feeling assured that our labors will cause no regret. As Mrs. Sigourney has beautifully versified my former remark—

> "'No sting in the bosom of memory we're leaving,
> No stain on the pinion of time.'

Let us commence the new century in the history of our Republic with increased enterprise and zeal for the promotion of our cause, and should any of us be called

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from our labors on earth, let us feel assured that others will continue the work we have begun and carry it forward to still greater perfection. Let the successes of the past stimulate us to greater exertions for the future. Let us work on, full of hope, regardless of all obstacles, 'still achieving, still pursuing,' until we shall reach that better land where the garden shall have no blight, fruits no decay, and where no serpent lurks beneath the bower—where harvests are not ripened by the succession of seasons—where th e joys of fruition shall not be measured by the lapse of time."

Col. Wilder, though not present, was re-elected President by acclamation, Hon. W. C. Flagg, of Illinois, being continued as Secretary.

Mr. Barry, chairman of the General Fruit Committee, made an able report to the Society, from which I extract the following historical item, as of especial interest in this connection:

"FRUIT CULTURE.

"The earliest records of fruit growing give the fig, almond, peach, citron, apple, pear, cherry, plum, quince, grape, gooseberry, mulberry, strawberry, currant, raspberry, and all the nuts now in cultivation. The first list of varieties shows twenty-two kinds of apples, thirty-six of pears, four of peaches and eight of cherries. Plums and what we now call damsons were then dry and sour. Hazel nuts and filberts were then grown, but our hickory and butternut and black walnuts were not known. This was in Italy about the year 300, of the present era. Of all nations France has grown and distributed the most fruit trees. Spain, where more varieties of fruit can be grown than in any other territory, deserves little credit on account of progress, either because everything grows so readily that care and labor are considered unnecessary, or else the climate takes all the exertion and desire for improvement out of the people. Turkey produces fine fruit. England had no fruit of value until the close of the tenth century, and then little beside the grape. At present the orchards, nurseries and commercial gardens of the British islands equal those of France. The Chinese in early times grew few fruits, but now they cultivate all kinds. Most of the fruits of North America were introduced by the French and Roman missionaries. The Pilgrims brought over peach trees with them, and were the first to introduce them in the now United States. The French Jesuits, however, were the pioneer apple and pear growers, and introduced the cultivated grape. Most of the grapes now grown in California were first cultured in this country by Jesuits. In 1798 the United States did not have a dozen commercial nurseries. Now the orchards of the different States are estimated to cover at least a million acres. It was not until after 1815 that the culture of fruits became a feature of interest to every intelligent cultivator of the soil. The United States has produced in late years the most and best apples, hardy grapes and peaches of any country on the globe. There are now grown in different States nearly 3,000 different varieties of apples, 1,500 of pears and 350 of peaches. The estimated yearly value of the fruits grown in the United States is about $50,000,000. The largest number of best fruits have come from nature's own commingling of the seeds."

The Society spent some time in revising the fruit lists, making some important changes, which I will not detain you by referring to, except to mention that the Northern Spy seems to be rapidly growing in favor since it is proving itself to be a better bearer as the trees attain age. It was double starred in several States not heretofore recommending it highly.

The last day of the session was spent in an excursion, per steamer, to the peach regions upon the eastern shore of the Chesapeake Bay. The boat landed, after a very pleasant voyage of three hours, at RIVERSIDE, the home of Col. Wilkins, one

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of Maryland's largest and most successful peach growers, who, together with a son and son-in-law, has one hundred and twenty-five thousand peach and thirty thousand pear trees in orchards. The crop of fruit was not good, owing to a heavy hail storm that passed over this region a short time before, greatly damaging all kinds of crops. The eastern peninsula of Maryland seems to be admirably adapted to peach growing. There are tens of thousands of acres of peach orchards visible from the boat as you ascend the Chester river, with numerous landings and packing houses lining the shores, from which the fruit is shipped direct to Baltimore and other seaboard cities. The soil is light sand, requiring good culture and a liberal use of fertilizers to insure a good healthy growth of wood and fruit. We were also informed by Col. Wilkins that an orchard of trees seemed to exhaust the soil so completely that a second planting of trees upon the same site was labor in vain. Evidences of blight were painfully visible in the Colonel's pear orchards. This I was hardly expecting to see on such soil, and especially in *grass culture*, but so it was. And now upon this subject I am led to remark that this intelligent body of practical men frankly acknowledge the

PEAR BLIGHT

to be a mystery, from the discussion of which no good was likely to result, as evinced by the summary manner in which the question was disposed of when introduced by Mr. Caywood, of New York.

Nashville, Tennessee, was selected as the place for holding the next regular meeting of the Society.

In some respects I was somewhat disappointed in my expectations. Although the meeting was composed of men of the very highest order of intelligence, both practical and in theory, yet the discussions did not seem to be of that interest that I had anticipated. Perhaps this may have been due to my own obtuseness; but I found others sharing with me this same feeling of disappointment.

THE EXHIBITION.

In connection with the meeting, and under the auspices of the Maryland Horticultural Society, was held one of the most successful exhibitions of horticultural products ever displayed upon this continent, at least so it was claimed by those competent to know. The fruit show included collections from Col. Wilder, Elwanger and Barry, Col. Wilkins, John Saul, C. M. Hovey, G. F. B. Leighton, F. Davis & Co., Wm. D. Brackenridge, B. S. Fox, of California, James H. Ricketts, R. S. Emory, and a host of others, while plants and cut flowers were exhibited in profusion by such well known cultivators as John Saul, Wm. Saunders and Wm. Smith, of Washington, the two last named being respectively superintendents of the Experimental Gardens and of the Botanic Gardens of the Government; James Pentland, Wm. Frazier, superintendent of Patterson Park, Joseph Kift & Son, R. W. L. Rasin, John Cook and others.

THE POMOLOGICAL SHOW

Consisted very largely of the finer classes of fruits, such as pears, plums, peaches and grapes, while from the Southern States might be noted an occasional representative of that highly favored semi-tropical region. Among this class were specimens of that rather singular product of the vine, the Scuppernong grape, with its large

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clusters of plump, highly aromatic, though pulpy and to my taste not very palatable southern representative of the species vitacæ. The apple crop east was not good, which no doubt explains why that fruit was not more abundant in this large collection. There were, however, some very fine specimens, especially from Virginia and Maryland exhibitors—the neighborhood of Norfolk, in the former State, perhaps, furnishing the best.

SEEDLING FRUITS.

Several exhibitions embraced new seedling varieties of fruits, some of which appeared to be highly meritorious. Prominent among this class I will mention a collection of seventy different varieties of pears from R. S. Fox, of San Jose, California, many of which were the result of his own skill in artificial hybridization. Some of these possess undoubted merit, and will doubtless prove themselves to be valuable acquisitions, especially upon the Pacific coast, where they hold their birthright. Of another large collection of new seedlings, the Baltimore *American* speaks as follows:

"Mr. Jas. H. Ricketts, one of the most successful grape cultivators in the United States, has sixty-four varieties of that fruit on exhibition, and every one is a new kind originated by himself. Although grown out of doors, they are fully equal to the best specimens grown under glass. They are all seedlings that have been thoroughly tested and found to possess first-class qualities. One is an exotic seedling that has been ripe out of doors since the seventh of July, being much earlier than the Black Hamburg. It is called the 'Welcome,' and is only equalled in rich flavor by the 'Lady Washington,' a Concord seedling, some of the bunches of which weigh two pounds each. There are several other varieties noted for hardihood, beautiful color and rich, vinous flavor. The aroma of this collection scented one entire side of the immense hall."

Mr. Ricketts is a citizen of Newburg, New York, the neighbor of Downing and Caywood and Grant and others of world wide notoriety in pomological matters, yet modest and unpretentious in every respect, he has justly won the good will and high esteem of them all by his perseverance and highly successful efforts at producing new and promising seedling grapes. I have never witnessed such a collection of new and promising varieties. And what gives additional interest to Mr. Ricketts' labors in this direction,

HE IS A HOOSIER,

Having been raised in Putnam county, where his parents still reside, and where, from the lamented horticulturist of that county, he obtained his first impulses in pomology.

I will close this report, so far as the pomological exhibit is concerned, with the following report of the committee on the award of the

WILDER MEDALS.

"Your committee for awarding the Wilder medals, report that they have made the following awards of silver medals, the objects exhibited being all deemed worthy of that distinction: To the Maryland Horticultural Society for general display; Eastern Experimental Farm of Chester county, Pa., for general collection of fruits; Ellwanger & Barry, Rochester, N. Y., for collection of 166 varieties of pears, 60 of plums and 25 of grapes; to Franklin Davis & Co., of Richmond, Va., for general collection of fruits; to Hovey & Co., of Boston, Mass., for collection of 120

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varieties of pears; to Benj. G. Smith, of Cambridge, Mass., for collection of 82 varieties of pears; to John Saul, of Washington, for collection of 200 varieties of pears; to the Connecticut State Board of Agriculture, for general collection of pears, apples and grapes; to Nathaniel Atkinson, of North Carolina, for collection of 108 varieties of apples; to E. F. B. Leighton, of Norfolk, Va., for collection of pears; to R. S. Emory, of Chestertown, Md., for collection of 21 varieties of pears; to J. L. Babcock, of Norfolk, Va., for Bartlett, Duchess and Seckel pears; to W. B. Weeks, of Norfolk, Va., for collection of pears; to Mrs. F. A. Hudgins, for four varieties of pears; to A. H. Page, of Virginia, for collection of pears; to Wm. Faitz, of Virginia, for pears; to Wm. T. Walters, for exotic grapes; to James H. Ricketts, of New York, for exotic seedling grapes; to Henry E. Hooker, of Rochester, New York, for Brighton grapes, and to S. T. Jenkins, of Georgia, for apples.

"The report is signed by W. L. Schaffer, of Philadelphia; Elisha Moody, of Lockport, New York; A. W. Harrison, of Philadelphia; Wm. Watson, of Texas; and B. F. Transon, of Humbolt, Tennessee."

FLORA.

Notwithstanding *Pomona* was the leading goddess in this grand display, yet, true to her esthetic instincts, she naturally sought the co-operation, as she ever does on such occasions, of her bosom companion, *Flora*. Indeed, I have often thought it folly to attempt to exclude the insinuating influences of this twin-sister by assuming the narrow cognomen, pomological, while horticultural is so much more appropriate in its significance. Owing to the already great length of this paper, I will only say that the plant and cut-flower show was superb, beyond my ability to describe. In addition to numerous private contributions from Baltimore, Philadelphia, Washington and elsewhere, the public parks and conservatories of Baltimore and vicinity, and the governmental gardens of Washington, added their richest and rarest gems to the adornment of the immense halls in which the display was made.

THE RESULTS

Are very appropriately summed up in the following extract from the Baltimore *American:*

"The American Pomological Society, which holds an exhibition every second year in some leading city of the United States, and whose culminating display in points of interest and magnitude closed last night at the armory of the Fifth Regiment, has good reason to remember Baltimore as having made good its claim to the hospitality of its citizens, and shown a culture capable of appreciating the highest attainment of horticultural skill. During their stay at the Carrollton Hotel, as the guests of the Maryland Society, the delegates from different parts of the United States and Canadas have been shown every possible attention and entertained in a manner that reflects credit upon a city which may be said to enjoy supremacy in the commercial dispensation of the products of the orchard and garden. In extent of transactions in fresh and canned fruits, especially the latter, Baltimore enjoys a deservedly high reputation. It is probable that the significance and importance of the presence here of the leading fruit growers from all parts of the country has not received full acknowledgment from the masses of the people. The direction of the attention of skilled and experienced pomologists to the various indigenous fruits of Maryland, the benefit to be derived by home horticulturists from the study of the products of other States, and the professional and business

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relations which have been made more intimate, can not fail to prove of great advantage. The exhibition, while not as numerously attended as it deserved, was equal to every expectation, and those who visited it were greeted with a scene of beauty and a display of nature's fairest products rarely excelled. Whatever else may result from the event, fruit growing and horticulture generally have received an impetus in Maryland that augurs well for the future."

As your representative and delegate from this Society, I fully accord to the citizens of Baltimore and the Maryland Horticultural Society, all that this extract claims for them in regard to hospitality and good will, and also from a careful observation extending over a period of six months at one time of her fruit markets, and a look at her resources on the Eastern Shore, fully convinces me that Baltimore must ever hold her present prestige as a fruit market and fruit preserving center.

THE EXCURSIONS.

There were two excursions tendered the Society by citizens and the State Society —one to Druid Hill Park by carriages, the other per steamer to the Eastern Shore. Druid Hill Park is a beautiful appendage to the city of Baltimore. It contains about seven hundred acres of land, and is immediately adjoining the city on the northwest. It has not been so highly adorned by art as Fairmount or Central Park, but is possessed of greater natural beauty and fitness for the purposes of a park. Near the entrance is a large reservoir, which, while it is part of the system of water supply for the city, serves the double purpose of park adornment. There are numerous appropriate buildings, groups of statuary, fountains, floral gardens and arboretums, with some effort at zoological display, and collections of aquatic fowls, but the main and central idea in the management, and the one that deserves the highest commendation by the park-going public, is to preserve in the natural condition the large per cent. of the territory that is still covered with the natural forests. The soil here appears to be the native home of the sweet cherry, there being trees within the park that rank in size with the largest representatives of the native forests, and which I am told are uniformly loaded with rich and luscious cherries, upon which the birds and squirrels of the park are permitted, unmolested to feed.

Of the boat excursion I have already spoken briefly, but realizing that I have fallen far short of justice to such an enjoyable as well as profitable occasion, I will, though no doubt at the expense of your already wearied patience, close this report with the following quotation from the columns of the Baltimore *American:*

"Leaving Baltimore at 8 A. M. the steamer went down the harbor with flags fluttering and Professor Itzell's band playing. She kept nearest the west shore, so as to give the strangers a good view of the elevators, the European steamships and Fort McHenry. There were many on board, including several ladies, to whom the sight of an ocean steamship was a novelty. It happened, opportunely, that on this occasion there were seven foreign steamships in port, an unusually large number. The day was delightful, the shores were bright and green, and the water view was engaging. The low, flat shores were comparatively new to the most of the delegates, who came from localities where the shores are hilly or in bluffs. Entering Chester river a fine survey of the oyster farms was afforded, but this was no rarity to some of the New England delegates, who have oyster farms of their own. The scene of the dredgers, with their red shirts, in little skiffs on the bright water, when looked at in the distance, was very attractive.

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"A PROCESSION.

"Upon arriving at the wharf at Riverside, the visitors were met by Col. Edward Wilkins, who here for the first time in many years met some of his fellow-growers of fruit on a large scale. The delegates, members and invited guests then formed in procession, with a band of music in advance, and marched the quarter of a mile from the wharf to the manor. Mr. W. H. Perot, President of the Maryland Horticultural Society, and Col. Wilkins walked in advance arm-in-arm. The grounds traversed were handsomely laid off and ornamented with box borders, pretty shrubberry and roses and other flowering plants in bloom. Upon arriving at the broad lawn, as soft and smooth as though covered by a carpet of green, the company scattered, some taking seats under the fantastic magnolia trees, others taking seats in the halls and piazzas of the large, old-fashioned house, and more again moving about the place examing plants and trees of interest.

"The excursion was by invitation of Col. Wilkins, who had made ample provision for the comfort and entertainment of his guests. It took him nearly a half hour to get through hand-shaking with the many whom he knew and those who were brought forward and introduced. Col. Wilkins seemed to regard the occasion as a very happy one, and had a smile and a cheerful word for every one.

"DINNER ON THE LAWN.

"Among the two hundred visitors were a large number who are known widely in fruit and floral associations. Among these were Wm. Saunders, Superintendent of the Agricultural Department, at Washington; Wm. R. Smith, Superintendent of the Botanic Gardens, Washington; Dr. Joseph E. Snodgrass, Secretary of the Potomac Fruit Growers' Association; Professor Brainard, prominent as an essayist and writer; Dr. Briggs, of Suffolk county, Va.; G. F. B. Leighton, of Norfolk, Va.; Judge Schleigh, of Georgia; Col. Daniels, of Virginia; A. J. Caywood and Dr. Culbert, of New York, and others well known. Among the Baltimoreans present were George W. Abell and Edwin F. Abell, of the Baltimore *Sun;* O. A. Kirkland, Mr. Atkinson, of A. Schumacher & Son; Charles H. Mercer, J. Mowton Saunders, W. D. Brackenridge, A. P. Sharp, E. D. Miller, James A. Henderson, A. and E. Hoen, Sheriff Mills, J. Adae Houck, W. K. Carson, W. A. Page, James W. Clayton, James H. Wood and others.

"Mr. R. S. Emory, also a large Maryland peach grower, who assisted Col. Wilkins in doing the honors, invited all present to a long table under a shady tree, where they were initiated into the mysteries of the compound known as 'peach and honey,' for which the Eastern Shore is especially famous. At noon dinner was served at a series of tables on the lawn, which were loaded down with every sort of delicacy, including fresh oysters taken a few hours previously from the waters hard by. Although so early in the season the oysters were of good size, and their flavor was better perhaps than that of oysters which will be caught later. Over two hundred and fifty persons sat down to dinner, and every one had more oysters, ripe fruit and a dozen other varieties at command than they could accommodate. Mr. Perot, of Baltimore, proposed the health of Col. Wilkins, which was drank standing, and followed by three rousing cheers that sent long echoes over the water.

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"PICKING PEACHES.

"At 2 o'clock P. M. about a hundred of the visitors took conveyances, and guided by Mr. Emory, drove several miles through the surrounding peach-growing country. Col. Wilkins has 1,100 acres under cultivation. His orchards contain 125,000 peach trees and about 25,000 other fruit trees. The crop of peaches this year has not been large, owing to a destructive hail storm which occurred last month and wrought sad havoc. From Mr. Wilkins' place the visitors went to adjoining fruit farms, finishing up with Mr. R. S. Emory's fine tract of nearly a hundred acres. Mr. Emory grows pears mostly, and has been very successful in their cultivation, although the hail storm also lessened his crop about one-half. In different fields he has trees of different ages. From his 15,000 pear trees he has averaged 1,500 boxes annually for ten years. The peaches grown by him are of kinds that he has tested by many years of experiment and found advantageous. From the balcony of Mr. Emory's house the visitors had a splendid view of Chestertown, a few miles away. Driving through the 400 acres of Mrs. Hiram Brown, the Heath and Hale peach trees were found in many instances broken from the immense number and weight of the peaches on the branches.

"THE RETURN.

"When the peach tourists arrived back at Col. Wilkins' place, they were met by those who had remained, who were drawn up in line, and saluted them with cheers, affording a good deal of merriment. Mr. Emory again brought out the 'peach and honey,' and at 4 P. M. the visitors marched back in procession to the steamer, which started on the return. During the trip back supper was served by Mr. Robert Rennert. It was a feast of varieties, excellently cooked and served in an admirable manner by experienced waiters, under the direction of Mr. Peter Lynch. Champagne and fruits closed the feast. The management of the whole excursion was unexceptionably good, and reflects credit upon the committee of the Maryland Horticultural Society who had it in charge. This committee was composed of James Pentland, August Hoen, J. Mowton Saunders, S. H. Corydon and W. D. Brackenridge. Mr. Pentland especially was assiduous in his endeavors to make the affair agreeable to every one, and did not have a moment's leisure the entire trip."

Mrs. Mary P. Haines, of Richmond, read the following essay:

THE ORIGIN OF ROCKS.

BY MARY P. HAINES.

RICHMOND, November 28, 1877.

Mr. President, Ladies and Gentlemen:

A few remarks on the origin of rocks will not, I presume, be out of place in this annual convention of horticulturists and agriculturists, whose object and pleasure it is to so cultivate the soil as may best secure the most profitable results in both material and spiritual good.

There is a wonderful and interesting connection between the dull-looking rocks and the beautiful flowers, fruits, vegetables and cereals of our yards, gardens and farms; therefore the origin and mineral composition of the rocks which form the

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various kinds of arable land are subjects of instruction and entertainment co-extensive with the best interests of our race. This earth of ours, with its great continents, its wonderful mountains and valleys, its diversity of climate and soil, its long rivers and vast oceans, is the exhaustless store house from which all our wants are supplied. From this bountiful source are derived all nutritive products that furnish food and sustenance for the vast multitudes of sentient creatures. Directly and indirectly all materials used in constructing the many kinds of textile fabrics, from gossamer lace to heaviest web required to clothe the human race.

Our dwellings, our public edifices, our temples of worship, our halls of art and science are built of the timber and stone thus derived. Still further, all implements for cultivating the soil, all machinery for manufacturing purposes, all utensils of domestic convenience, all articles of ornament and beauty, are, through inventive genius, obtained indirectly from the rocky crust of the earth. The soil is of such vital interest to us all that its improvement and the causes of its deterioration are subjects of grave discussion among men. Many of the most learned in this and other countries have for years devoted their best talents in studying, analyzing and ascertaining the chemical composition of various soils, and their adaptation to the several kinds of grain, vegetables, fruits, etc.; what will best suit one product and what another; and when deficient in certain qualities, how best to remedy it, and secure to the patient cultivator the fullest return for his care and labor. We are told, and it appears self-evident, that all kinds of soil are the result of the disintegration of previously existing rocky strata, which, by the action of water in the form of rain, frosts, streams and floods, together with atmospheric and other agencies, have been worn, crumbled and pulverized into the fine clay, sand and loam which constitute the fertile lands for raising those staples of life, the wheat and corn. The soft upper layer of the earth's crust, which forms the tillable land, is derived from harder rocks; but from what are the rocks themselves derived? Too abstruse a question, does any one say, for finite man to answer? Still more so for a woman, who has no practical knowledge on the subject. Yet it is a subject I always contemplate with interest and a feeling akin to reverence. The rough pebbles that bestrew the ground awaken thoughtful inquiry into the great mystery of their existence, which, if solved, would fathom the depths of the universe, and no man-written volume could ever contain. Some years ago Dr. Mantell wrote a beautiful little sketch of the history of a pebble, which was to me more interesting than any novel he might have written. The immortal soul is restless in its home of flesh, and the human intellect is ever striving to grasp the unseen, to ascend to greater heights and fathom profounder depths in searching out the hidden truths of nature. And hence, master minds in science, undaunted by difficulties, through long centuries, by patient perseverence, experiments and discoveries, are gradually solving the problem of the rock—that they are results of the vital forces of Mother Earth. History records that a hundred years ago the clear, penetrative insight of grand old Linnæus enabled him to say that "fossils are not the children, but the parents of the rocks."

In the divine ordering there is a reciprocal relation and mutual dependence among things. We first learn that the rocks afford the material sustenance of life, vegetable and animal; afterwards we learn that vegetable and animal life are the chief agencies in building the material of the rocks, the solidity of which has been determined by physical causes. This, in many cases, is very evident, and may be demonstrated to the dullest comprehension. Take up almost any piece of limestone quarried at Richmond, Indiana, and it will be found full of curious forms. The time has long since passed when similar forms were considered mere "freaks of nature," or "due to some influence of the stars." Yet not many years ago it is

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stated a noted theologian of New England met Prof. Silliman's query as to "how these once living animals got into this position, except as the rock gradually formed about them?" with the following reply, "Nonsense, nonsense; do you think that God, when he made the rocks, couldn't have stirred in the things, just as easy as a cook stirs raisins in a cake or puddiug?" This view of the method of infinite wisdom is fast becoming obsolete, and the agency of living forces recognized, and naturalists of to-day have no hesitation in pronouncing these various petrifactions remains of organic life, imbedded in the sedimentary deposits of an immeasurably ancient silurian ocean. Upward of a hundred species may be found in the rocks near the city of Richmond, which have been described and classified. Some are quite large, others small, and some are very minute, but enough of them can be plainly seen, without resort to a microscope, to prove that vast numbers of organic forms furnish a great part of the ingredients of these limestones. "The dust we tread upon was once alive," comes nearer being a literal truth than many may be inclined to believe; yet year after year adds its testimony, and fact after fact demonstrates the truth of the poet's utterance. Extensive strata have been built up by the remains of minute organisms too small to be discerned by the unassisted eye. Some of the rock at Spergen Hill, Washington county, of this State, is a conglomerate mass, comprising many species of small fossils, some of them so minute as to require the aid of a lens to enable the eye to discern the beautiful markings and sculpturing that adorn the surface. Many of these are species of foraminifero, and are somewhat similar in character to those minute organisms which to-day, on the floor of the ocean, by their countless myriads, are increasing the solid material of the earth's crust by deposits over areas of vast extent.

There is a strata of silicious deposit found a few miles northeast of Virginia City, Nevada, which looks like chalk, but is said to be almost pure silex, and is composed entirely of the shells of infusoria. A solution of it in water, and placed under a powerful microscope, will show a great number of distinct organisms of the most curious and beautiful structure. Like Tripoli, it is used for polishing purposes.

Prof. Dana tells us, by far the greater part of the limestones of the globe, have been made through the agency of life, either vegetable or animal. Some are of the opinion that all limestones have been thus made.

Marble is a compact crystalline limestone. How strangely such facts impress one when examining our beautiful marble mantels, tops of center-tables, bureaus, etc., etc. In very many kinds of marble, the fossils are distinguishable, and often furnish the name, as "Encrinal marble," from the imbedded stems and joints of encrinites, and "Madreponic marble,' from the coral that forms the most of it. Lumachello is a marble in which the nacreous matter of the enclosed shells gives beautiful chatoyant reflections, and from this quality it is often called "fire marble." But in many marbles all trace of life is lost, the structure being completely changed into one homogeneous crystalline mass, as in the statuary marbles of Paros and Carrara.

When at the Centennial, in Memorial Hall, we gazed in almost breathless admiration on the magnificent display of statuary and other lovely creations of art, carved by the magical skill of the sculptor's hand, out of immaculate marble, it was difficult to realize that this pure white, semi-transparent material, was once a sedimentary deposit of organic exuviæ, forming the floor of an ancient sea. Carrara marble, we are told, is a metamorphic limestone of the oolitic period. The beautiful mottled Tennessee marble is far more ancient, belonging to rocks of the lower silurian age, when the development of life was in the earlier stages. Calcite,

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then, is largely of vital origin, but how is it with quartzite, agate, amethyst, cornelian, chalcedony, opal, jasper, and their kindred?

Do these admit a similar origin? Investigation has shown, in many parts of the world, extensive strata have been formed by the accumulation of infinetessimal silicious cases and skeletons of microscopic plants and animals, and that by heat and chemical or mechanical action, or all combined, these strata, have been converted into quartzite, or compact silicious rock.

The exquisite Mexican onyx, a hydrated silicious deposit of stalagmitic structure, of which the beautiful table-tops, exhibited at the Centennial, and also the magnificent mantel and clock purchased by the German Commissioners for the Emperor, were made. Can it be true that this had a similar source? In a lengthy article, published some time ago, in the *Popular Science Monthly*, from the pen of Prof. Huxley, on some of the results of the expedition of H. M. S. Challenger, he says: "It is at present a perfectly tenable hypothesis that all silicious and calcareous rocks are, either directly or indirectly, derived from material which has, at one time or other, formed part of the organized frame work of living organisms." This much, then, for rocks of calcite and quartzite, but what of arzillite?

Are the extensive quarries of slate, with its upturned edges and regular cleavage, equally indebted to the living forces of the early periods of our globe? Late discoveries point to that conclusion.

Prof. Huxley further says: "It seems evident, from observations here recorded, that clay, which we have hitherto looked upon as essentially the product of the disintegration of older rocks, may be, under certain circumstances, an organic formation like chalk; that, as a matter of fact, an area on the surface of the globe, which we have shown to be of vast extent, although we are still far from having ascertained its limits, is being covered by such a deposit at the present day."

This is a startling discovery, but it proves to us that life is the great alchemist, transmuting the baser elements into higher and nobler products; ever over-shadowing decay and death with verdure and immortal beauty.

One word about geodes, which are so abundant in many parts of our country, and especially so in sub-carboniferous strata, and are generally hollow and lined inside with crystals of great variety and beauty. The geodes were a long time a puzzle to geologists, as to their nature and origin, and were thought by many to be concretionary. But here again life was the first builder, as they are now conceded to have been in their first conditions, in most if not all cases, the result of vital forces; neither more nor less than the ancient habitations of zoophytes, crinids, mollusks, etc., which have been changed into the geodes as we find them. In many instances traces of their former structure are plainly discerned, while in others it is nearly or quite obliterated by the process of geodization.

The lower and simpler forms of animal and vegetable life were agents in past ages, and the same process is continued in the present time, by which a great part of the earth's crust has been made, and the civilization of the race in numberless ways advanced. They have contributed stone and brick for our dwellings, slate for roofing, and helped even the school boy with slate and pencil to solve his problems in geometry.

Inscrutable as the methods of infinite wisdom may seem to us, we may rest assured they are best adapted to promote the welfare and highest advancement of the race, and that His love is equally unfathomable, and we adopt as expressive of our own sentiment the words of a beautiful hymn:

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"My God, thy boundless love we praise;
How bright on high its glories blaze,
How sweetly bloom below;
It streams from thy eternal throne,
Thro' heaven its joys forever run,
And over earth they flow.

"'Tis love that gilds the vernal ray,
Adorns the flowery robe of May,
Perfumes the breathing gale;
'Tis love that loads the plenteous plain,
With blushing fruits and golden grain,
And smiles o'er every vale."

Mrs. Helen V. Austin, of Richmond, followed with a paper entitled

PIONEER WOMEN OF THE WEST.

BY MRS. HELEN V. AUSTIN.

"The mothers of our forest-land!
Stout-hearted dames were they;
With nerve to wield the battle-brand,
And join the border-fray.
Our rough land had no braver,
In its days of blood and strife—
Aye ready for severest toil,
Aye free to peril life.
To load the sure old rifle—
To run the leaden ball—
To watch a battling husband's place,
And fill it, should he fall.

"The mothers of our forest-land!
Such were their daily deeds.
Their monument! Where stands it?
Their epitaph! Who reads?
No braver dames had Sparta,
No nobler matrons Rome—
Yet who lauds or honors them,
E'en in their own green home!"

The ever-blessed mothers of the West! What though their graves may be unknown and their names forgotten, their undying genius is the life of *the life* which our country lives to-day. Though nameless now, their blood flows in the veins and beats in the hearts of the noblest and best of the sons and daughters of the land, and we are proud of our maternity. Because they have lived, we have a noble birthright. While tradition and history last, and Liberty is our godess, shall the people of the commonwealth cease to rise up and call them blessed?

Occasionally a little scrap of history comes up to remind us that bravery and fidelity were characteristics of the women in the early settlement of the country.

During a siege of a block-house, it is recorded: "There were but twelve men and boys there, unless, indeed, the women were counted, than whom none were braver or calmer within the walls of the little fortress."

As a general rule in the past, the boy was taught to read and write, the girl was taught to spin and sew; therefore, the men have written the history of men, but the lives of women have been unrecorded. But now and then we hear or read a few words which is like the text, from which must come the true essence of the sermon.

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It is like the little feather which floats down into our pathway—we take it in our hand, and from that we predicate the bird which we have never seen, and whose song we have never heard. The tiny feather teaches the lesson; that although we may not have seen the bird, it had its existence, nevertheless. It filled its mission, sang its songs, and built its nest, regardless of our existence.

We talk about the "times that tried men's souls," and delight to honor the memory of the men who were the sturdy pioneers of our glorious land; but we scarcely recognize the existence of the women who walked by their sides and bore their share of the trials, and by their endurance and fidelity encouraged and taught their husbands and sons the sublimity of heroism. If the *hour* had its *man*, so had the *day* its *woman*. What hearts of faith and hope and love, were theirs! Toils, hardships and dangers beset them on every side. They were the brave and strong, who, with their husbands and sons, bore the banner of civilization into the wilderness. Poor were they in luxury and ease; rich were they in health, industry and integrity. Think you that the sons of such mothers ever thought to stop them by asking if they were not afraid of getting out of their sphere? When a hostile foe was on the border, the old-time mother said, as she moulded the bullets:

> "Take your gun and go, John,
> Take your gun and go;
> For Ruth can drive the oxen, John,
> And I can use the hoe."

It was not because our pioneer mothers delighted in wars and bloodshed, or that cruelty and barbarism was any part of the spirit which urged them on, when they sought new homes in what was then the far West; but they were women who were equal to the necessities of the times, and where love or duty called, stood at their posts, and if need be, *died* at their posts.

It was a happy thing for the prosperity of the country, that man came not alone to the western wilds. Almost all of the horticultural wealth of our fair land, at the present time, is an outgrowth of the fact that by the side of the backwoods *man*, was the backwoods *woman*. It is the feminine element that pervaded everything that has made the horticultural wealth of the land to-day. The proof of this can be found by tracing back to the beginnings. Another proof lies in the comparisons which can be made between our land of pleasant homes, and those districts which have been occupied by men only.

One hemisphere is only half the globe. Without the other half the equipoise can not exist. The earth was round all the time that people thought it was flat, and kept the equipoise long, long before it was discovered that the other half was in existence. So man and woman make the perfect rounded sphere of humanity. To separate them is to destroy the perfection which providence makes possible, and which is impossible if the laws of the universe are disregarded. Equal rights for man and woman, equal education for our sons and daughters, are the principles which are leaving old superstitions and barbaric customs to be hidden with the dark ages.

As agriculture was inseparable from the growth and prosperity of our country, so was horticulture inseperable from agriculture. And whatever of poetry and beauty went singing through the hearts of the pioneers, found partial development in the finer arts of the tillers of the soil. And the hemisphere of hard toil and the hemisphere of beauty united, and made the perfect rounded sphere of rural life. Home, family, husband, wife and children—what unwritten depth of meaning lie in the words. The "open sesame," in the old Arabian tale, revealed not greater wonders than these words. A broad agricultural district without one trace of human

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habitation, or the comforts of home, would be but a dreary waste compared to our land of homes, where horticulture and home adornment have made the "wilderness to bud and blossom as the rose." And a home without adornment is a contradiction of terms. We take pride in the beauty of the thing we love, and labor that it may remain so; when we neglect or cease to admire it, we are unworthy of it. We need not possess great wealth by which to have a beautiful home, to bring costly treasures from foreign lands to garnish our parlors, or to be connoisseurs according to the schools. Nature is the truest model; innate taste and appreciation are the best dictators. The simple, common things about us are often more beautiful than costly importations from foreign lands. Nature is lavish of her gifts, and the touch of beauty is on everything. There are people who speak of flowers and all beautiful things as vanities to be discarded, and without utility. It may be possible to adorn without usefulness, but while beauty has its meaning, and teaches its lessons, how much better to be influenced by it, making toil half divine, keeping the heart young, than be ruled by hard and cold task-masters, that make us old in youth and wrings from the heart its life of life. There is a charm about the cosy, home-like homes that is found nowhere else. Our sons go out from the glare and glitter of palatial residences with scarcely a sacred memory associated with the place. But the *real* homes, such as men dream of when they plan a happy future, that is the castle in the air, and yet the dwelling on earth, whose sovereign is their queen of hearts—these are the homes whose influence goes with the wandering heart of man to the ends of the earth, and stands as a wall of fire between him and the evils of the world.

Although the log cabins, where our pioneer mothers lived their lives of self-denial and fortitude, were rude, they contained many things which make a dwelling home. Books and pictures were not plenty, but intelligence and refinement made good use of all that were possessed, and there was often more true taste shown in the arrangement of a few carefully preserved articles, which were relics of former days, brought from the old home, than are to be seen in some of the gaudy, pretentious mansions of to-day. The women of that day were as proud of their webs of home-spun cloth as those of to-day are of tidies, wax work and the endless list of fancy articles.

Before the log school house or church were built, the gospel was preached in the cabin of the pioneer. The banner of the cross was carried in the back woods with as much faith as when the knights of old inscribed upon it "IN HOC SIGNO VINCES." The gospel was not a mere sentiment or fine theory in the days of the pioneers. It was "the power of God unto salvation." It was the corner stone upon which everything was built. It was the cord that bound together the hearts of the people; the chief adornment that blest and refined the cabin homes in the back woods. Go ask the men of to-day, who were born and bred in a log cabin, where they learned the story of the Babe in the Manger; where they learned of Him who went about doing good, preaching and healing diseases, the friend of sinners, and acquainted with grief; ask them where they were taught the story of the cross? Will it not be, at mother's knee, or from the preacher who came and preached in our log cabin. And all the neighbors were there, from far and near. It was usually the case that mother was a member of the church, even if father was not, but he loved mother, and let her have her own way in some things. And it was nearly always so, that mother helped the preacher. She would dry his wet garments if he had come through the rain or had forded the river. Perhaps she would give him a garment of her manufacture, or sit up half the night to patch and darn his poor clothing. Oh, the old-time mothers! Theirs was the faith that discerned the celestial city, and surely they must have had an "abundant entrance" to the heavenly mansions.

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Seeing that we have such a birth-right and such and inheritance by virtue of our noble maternity, what manner of children ought we to be! Though time and the grave have done their unrelenting work, their genius is with us yet. The work of their hands has not passed away. The soil their feet has pressed is ours to-day, and is hallowed ground, and in the eternal home will they not be there to greet us?

The bells of the new years may not have rung in more true and tried lovers and friendships, or purer manners or higher attainments in Christian graces, since the pioneer mothers have gone to rest; but we claim a higher civilization and a grander existence as time rolls on and knowledge is diffused without limit. But let us not forget the example of their noble lives. Greater fidelity to duty than theirs can not be attained. They were faithful to the things committed to their hands, and exemplified in their lives the grand characteristics which are sure to overcome difficulties and be rewarded by successes; without such characteristics life will be a failure, with all the advantages of education, position or wealth.

Our pioneer mothers taught the dignity and sublimity of LABOR. And if there was nothing else of which we should be proud, this should suffice. Theirs was not soft and idle hands. Theirs were not habits soft and silly and self-indulgent. We have a goodly inheritance, because our mothers helped our fathers to earn it. Should the children be spendthrifts and ashamed of labor who have such parentage? They have bequeathed us our homes; should we not leave as rich a legacy to our children, and as horticulturists and laborers in the various fields of art and science, emulate the deeds of those, the good and great, who have left us to fill their places?

Long may the starry flag float over our land, where repose the ashes of the "mothers of a mighty race," while Plenty pours from her golden horn, rich gifts of fruit and flowers. Mountain and valley, prairie and forest, abound in resources to bless us. Orchard and garden are laden with the riches of paradise. From the eagle's eyrie on the crags, to the swallow's nest beneath the eaves, the voices of freedom and domestic love are calling.

"Columbia, the queen of the world and the child of the skies," the almoner of liberty to the nations, while the rolling years bring new seasons, with their fruits and flowers, may thy sons and thy daughters live worthy of their inheritance; and happy homes, adorned with beauty and blessed with peace, be thy strong citadel of liberty,

> "Till Hesper, as he trims his silver beam,
> No happier land shall see;
> And Earth shall find her old Arcadian dream
> Restored again in thee!"

Each of these ladies was warmly applauded at the conclusion of their papers.

THE SECRETARY—Remarked that the addresses which we have just listened to spoke well for the Richmond society. But for the Richmond society the State Society would not have had the aid of these ladies.

MR. N. OHMER—Remarked that in Ohio they endeaver to maintain the social element; where we keep this, we prosper; where we do not keep it, we fail.

Adjourned to 1:30 P. M.

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SECOND DAY.

AFTERNOON SESSION.

The meeting was called to order at 1:30 P. M., by President Johnson.

Secretary Ragan presented a paper on

SANITARY INFLUENCE OF FORESTS.

BY DR. GEORGE L. ANDREW.

W. H. Ragan, Esq., Secretary Indiana Horticultural Society:

DEAR SIR:—When I received your kind invitation to attend your next annual meeting, with a paper on the subject of our forests, I was not without hope of being able to comply with the request, but at this late date two things are quite certain—that I can not meet with you, and that I will not be able to send such a paper as the Society deserves and I had hoped. This is to me both a disappointment and a regret; but I can not let the opportunity pass without at least calling the attention of the Society to a matter in which horticulturists have a special interest, in the hope that it may take such action as may tend to save at least an occasional remnant of the glorious forests which now seem to be, in our State, in a fair way to speedy extinction.

The rapid and general destruction which forests have undergone within the life of the present generation, has not failed to attract the attention of the thoughtful of all classes. The changes which have already been produced in the physical aspect of the country, in its climate, in the water supply, etc., has been deemed of sufficient importance to justify the appointment of a congressional commission on forests, and much of the labor of the statistician in the department of agriculture has been of late devoted to the subject of American forestry. Ship builders begin to wonder where the supply of the special kinds of timber needed in their craft is to come from in the next generation. Farmers are already compelled to double the number and capacity of their buildings for the shelter of their stock, and are beginning to realize that, in the slaughter of their forests, they have so far exposed their crops to the killing blasts of winter and the fierce winds of summer, as to place fruit and grain growing among the most uncertain of human industries. The withdrawal of their friendly shelter, and the cruel tender-mercies of the sportsmen, have lessened the number of insectivorous birds to such a degree that our insect enemies threaten us with a famine of the fruits and vegetables that used to abound as almost the spontaneous products of our soil.

The history of one age and country is only a repetition of what has gone before. In all this we only have the beginnings of the end, which has come to the countries most anciently inhabited by man. Palestine, in the time of its great king, maintained a population of more than two hundred and fifty to the square mile, and nature so bounteously rewarded the rude culture of its soil, that "the threshing reached unto the vintage, and the vintage unto the sowing time." The fire of enemies, and the ax of the improvident, have done their work so thoroughly, in the destruction of the natural covering and protection of the land, that "while for miles and miles," to quote from Dr. Stanley, "there is no appearance of present life

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or habitation; there is hardly a hill-top of the many within sight, which is not covered with the vestige of some fortress or city of former ages; Saracenic, Crusading, Roman, Grecian, Jewish, extending perhaps even to the old Canaanitish remains before the arrival of Joshua." "No soil," says Schubert, "could be naturally more fruitful and fit for cultivation than that of Palestine, if man had not destroyed the source of fertility by annihilating the former green covering of the hills and slopes." This is but a fair example of the rest, so that Champollion, in view of the evidences before him in the desert of Sahara, might well exclaim, "And so the astounding truth dawns upon us that this desert may once have been a region of groves and fountains, and the abode of happy millions! Is there any crime against nature which draws down a more terrible curse than that of stripping our mother earth of her sylvan covering? The hand of man has produced this desert, and, I verily believe, every other desert on the surface of this earth. Earth was Eden once, and our misery is the punishment of our sins against the world of plants The burning sun of the desert is the angel with the flaming sword who stands between us and paradise."

Is there danger of a repetition in the western world of the folly and improvidence which has so greatly and so disastrously changed so many portions of the eastern? The relations between cause and effect are as fixed as fate, and our only grounds of hope that the future will not repeat the past in this regard lie in the changed conditions of our modern civilization. Tree planting and tree conservation, improved methods of culture, analysis of soils, scientific accuracy in the use of manures, wise rotation in crops, furnish, I think, sufficient guarantees for the continued fertility of the soil in the portions not already worn out, and even a sure promise that many of the desert regions may be reclaimed. Efforts in this direction have been followed by surprising results already upon our western plains—the great American desert, the product of aboriginal fires; the area of profitable cultivation in Egypt has been more than doubled within the last thirty years, and oases are increasing in number and extent even in the Sahara itself. These have all been the result of tree planting; and as the first step toward the desert state is the destruction of forests, and the denudation of the earth's surface, so the first step toward the rehabilitation of the desert is in the planting of trees.

Forests increase the amount of rainfall over their own areas and their immediate vicinity. By means of their interlaced roots, mosses, lichens and sponge-like humus, a much larger proportion of the rainfall sinks into the earth than of that which falls upon cleared ground—thus maintaining the abundance and steadiness of the water supply in wells, springs and rivulets, instead of permitting it to be borne rapidly away by the natural surface drainage of the country. Trees diminish the amount of evaporation from the earth's surface, and at the same time increase the humidity of the atmosphere by the enormous evaporation from their leaves and stems. Forests modify temperature—wooded countries being warmer in winter and cooler in summer—and by means of their slow conducting power the heat of the day is more equally distributed over the twenty-four hours. The proper location of tree belts will greatly hinder the dissemination of malaria; in this and other ways greatly adding to the health and comfort of man. They are of positive value in affording shelter for man, beast and crop from the excessive heat of the sun and the fierce violence of winds. Forests and tree belts are essential to the preservation of insectivorous birds, without a due supply of which the farmer and horticulturist labor largely in vain.

These propositions are capable of abundant proof, but this is not the time and place to produce it. Neither is it necessary here to more than allude to the infinite uses of forest products in the various departments of human industry and art; to

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the continued and increasing demand for lumber, for fuel, buildings, furniture, for carriages; cars, ships and other contrivances for transportation; for railroad ties, fences, and the thousand other necessities, some of them old as our race, others the products of the new civilization. All these emphasize the folly, not to say crime, committed in the universal destruction of our forests. "Men of all climates," said Humboldt, "seem to bring upon future generations two calamities at once—a want of fuel and a scarcity of water."

The presence of an increasing population necessitates the removal of the greater portion of the primeval forests for the purposes of tillage and pasturage; and healthy habitations require abundant open space for the free access of sunshine and air. A wise economy in the disposal of the lumber and wood thus realized, together with a careful husbanding of the resources of the remaining woods, would suffice for all legitimate wants. But waste ever waits upon abundance, and want is very apt to follow. As if these causes were not sufficiently potential in the destruction of our forests, we have in addition an enormous State and county tax to compel, and a national tax on forest products to invite, the destruction of our own. The tariff on Canadian lumber and bark will, if continued twenty years longer at the present rate, entirely exhaust our home supply of valuable timber. Trees may be planted, many of them in a day, but the pine or walnut that will produce clear lumber is the growth of generations. The Greek who, a couple of thousand years ago, killed the goose that daily laid for him a golden egg, has served for all these ages as a classic specimen of short-sighted idiocy. Very much like that is the legislation which "protects" our trees by, on the one hand, taxing them nearly unto death, and, on the other, by placing an indirect bounty upon their scalps. The American Medical Association, which is no more a political body than this is, at its last annual meeting unanimously requested Congress to admit quinine free of duty. This it did in the interest of the millions of consumers of a remedy which is an essential in the many portions of the country, notwithstanding the fact that there are Americans engaged in its manufacture. In like manner I would respectfully suggest that this Society, representing in a very important respect every inhabitant of our State, take such action as may seem wisest and best adapted to secure its and the public interest in so vital a matter. The provision of our State constitution relating to "uniform and equal assessments," may present a difficulty in the way of exemption of timber lands from taxation entirely, but I think the burden could be very greatly lessened. Every year lands that are unfit for cultivation are being sold for taxes at prices that realize almost nothing to the public treasury. Perhaps it might be wise to reserve these lands and hold them as the property of the State. A very little care in their protection on the part of local authorities, who might be got to see the value of such care to the surrounding and more fertile lands, might in very many cases in a very few years result in valuable timber lots, or at least in valuable shelter belts. There are few regions in which there are not areas larger or smaller not fit for profitable cultivation, but which could be profitably devoted to tree culture. Such are many of our hilltops and hillsides, ravines, illy-shaped and fragmentary bits of ground, road side and all waste places, which, from being worthless or nearly so, might be made valuable in themselves and valuable to all the neighborhood. Once planted and fairly established, their protection by an enlightened public sentiment and suitable legislation might be reasonably expected.

Finally, let every horticulturist and agriculturist in the State constitute himself a committee of one to see to it that these principles and suggestions are carried out in his own neighborhood, and upon his own place *at once*, and the result in ten years

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would doubtless surprise the most sanguine; and although many who thus would plant might not live to see the full fruition of their work, those who follow will surely rise up and bless their memory.

LAPORTE, December 17, 1877.

Next in order was a paper by Dr. S. S. Boyd, of Dublin, Wayne county. In the absence of the writer, President Johnson read the paper.

OUR FRIENDS, THE BIRDS.

BY S. S. BOYD, OF DUBLIN, INDIANA.

In this paper on birds I propose first to try to establish the fact that they are our friends, under the following definition of the term, "Friends, those who are favorable to our interests."

If I succeed in my first proposition, I shall proceed to consider the vexed question, "How shall we treat our friends?"

Judging from experience, and the fitness of things, it is safe to infer that nature untrammeled would supply such correctives to her own created evils as to keep the latter in check, that the earth would reward man's labors with the essentials of existence; but when we, through ignorance or thoughtlessness, destroy the antidote to the pests of society, the evil predominates and we suffer the consequences.

This I believe is the condition in which horticulturists are laboring in this most discouraging period of our history.

That a large portion of insect life is detrimental to the best interests of horticulturists does not need argument. And that the birds, unmolested, would keep the insect depredations in check, ought not to demand more than a simple statement of the fact. In short, the birds are our friends. But as this, unfortunately, is a controverted point, we will proceed to sum up a part of what the birds do for us and against us, then balance the accounts, and see how they stand.

First, our birds sing us the sweetest songs ever heard since the morning stars sang together. In order to properly appreciate this statement, let us suppose it were possible, through the wickedness of men, to extinguish the lives of all the birds which make glad the return of spring. And suppose when the sun next crosses the equator, when in the wood lands, in the meadows, and in our gardens, is being again performed that wondrous miracle of bursting buds and opening flowers, we should hear no song of birds as they come to tell us spring time is here.

"From the maples in the meadows,
From the beech tree by the spring,
Loud they sang, till, with their music,
All the air seems quivering.

"Praise our God, begins the swallow,
That another spring is here.
And O praise Him, sings the sparrow,
For the morning bright and clear.

"And for freedom, sings the bluebird,
'Tis so glorious to be free;
And we praise Him, chirps the robin,
For this sheltering greenwood tree.

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"And we thank Him, trill the thrushes,
For these wings to sweep the air,
For His kindness and His goodness
To His creatures everywhere.

"Then their voices altogether,
In a chorus wild and high,
Sing the beauty of the flowers,
And the glory of the sky."

If no bird ever sang a song, the beauty and grace of the feathered tribe would do much toward making this cold world more tolerable. Where can we find such exquisite coloring, such graceful forms, as we see in birds. An eminent ornithologist says: "No epithet has been spared to define the richness of the coloring of the humming bird, and yet all fail in comparison with the reality. 'The lustre of the topaz,' 'the emerald and ruby,' 'the hue of roses steeped in liquid fire,' 'the locks of the star of day,' and similar expressions all fall short of the changing tints of gorgeous plumery."

And again, what a pleasing study is the architecture of the nests of birds. From the barn swallow, which, with exquisite skill, shapes his adobe house like a half-section of a tea kettle, with the spout for his door, to the oriole who takes his summer voyage in a hammock suspended to the pendant twig of a drooping elm, all are full of material for pleasing contemplation of those who can see through nature up to nature's God.

Who is there present who has not been thrilled by the first harbinger of spring, the bluebird, as his sweet presence and sweeter song announce that crocuses are here? If such there be, I hope for his sake it is because he is holding his ecstacy in reserve, until the oriole, perched on apple blossoms, first sings his canticle of praise to the spring's return.

And yet we know there are those outside this Society of whom it may be said,

"A primrose by the river's brim
Only a primrose is to him,
And it is nothing more."

To such an one a bird is but a frog in feather. To him it is scarcely necessary to say that this world, with all its beauties unmarred, is not more than attractive enough for a home of three score years and ten.

Life is only tolerable now; what would it be were the above named blessings removed?

But to pass from matters of taste, which appeal only to our love of the beautiful, let us inquire what would become of the horticulturist and farmer in a few years if all bird life were extinguished? Does any sane mind suppose that human existence would be possible for any considerable period without the aid of birds?

We are told, by doubtful authority, however, that one pair of quails on an average will produce one dozen increase annually. But let us see how insects increase in progeny. Take, for example, one pair of potato bugs in the prime of life. Their offspring in one year, by reasonable estimate, will, if unmolested, amount to 27,000, or 13,500 per cent. per annum. By experiment this season with the cabbage worm, I found, by placing the freshly laid eggs with the cabbage leaf in a closed glass jar, that in just thirty days they had changed from eggs to worms, from worms to the chrysalis state, and from the chrysalis to the moth or cabbage butterfly. I do not know how many eggs a cabbage miller deposits, but supposing it to be as good a layer as the ten-striped potato bug, it would produce about the same annual pro-

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geny. But suppose these horticultural pests are only half as prolific as the above estimate makes them, even then a pair of healthy representatives of each class would be an ample supply for any young horticulturist to start in business. From this it is easily seen that the undisturbed increase of all the hosts of bugs and millers which winter over, would in a few years devour the last vestige of all vegetation on which these two classes of insects feed.

It is difficult to approximate an estimate of what would be the increase of all the pests of vegetable life, if they were not molested. But I doubt not that it would be a matter of time, and that only of a few years, until it would be sufficient to utterly destroy every species of vegetation on the face of the earth—no grass, no leaf, no flower, but all would be one vast, barren desert, where men and worms would be dying together for want of room. And this is no mere sketch of fancy, but a fair statement of the strongest probability, in case that all our birds were to become extinct. By being death to all the insect tribes, the birds are one of the conservative forces by which it is made possible for man to inhabit this earth.

I think it is more than probable that the main reason why grasshoppers are so abundant in the west is because of the want of trees and shrubs in the prairie country to furnish homes and shelter for birds, which would otherwise be too abundant for grasshoppers to multiply to their present alarming extent.

If any one has any doubt as to the number of worms and insects which our birds destroy, let him watch a cat bird or a bluebird feed its young for but a single day, and his doubt will be removed.

It may be said that birds do not destroy those insects which are the worst pests to the horticulturist. How do you know? I have seen the common garden sparrow feasting on cabbage worms. Ducks will eat the ten-striped potato bug, and who can tell but that, if we were on sufficiently familiar terms with all our birds, and the number increased, the species of birds would be found which would consider the Colorado bug a delicacy.

Again, most of our smaller birds materially assist the farmer and gardener by devouring vast quantities of the seeds of weeds and grasses which are so deleterious to our crops. How much we are benefitted by our birds in this manner we could not tell, unless we could try the experiment of living without their aid.

The above are some of the blessings we enjoy from the presence of birds, all of which might be materially increased by a more kindly treatment than they have hitherto received at our hands. We should let them know that we are their friends, as well as we ought to know that they are our benefactors.

Let us now examine some of the charges which are laid at the door of the feathered tribe. In other words, of what are they guilty which makes them chargeable with being our enemies?

As far as the bluebird, the wren, the oriole and the whole genera of swallows, with many other kinds of small birds, are concerned, not one harmful charge can be brought against them.

It must be admitted that the cat bird and the robin have a leaning toward ripe cherries, raspberries and blackberries, also that, of late years, they are cultivating a taste for grapes. But who dare say that during the three spring months and the early part of summer, these birds, by their destruction of pestiferous insects, have not made it possible for the gardener to raise small fruits at all?

And then again, in the autumn, after all small fruits are gone, robins live on insects, by which they are fattened for the Southern sportsmen, who kill and eat them as we do quails in the North.

Blackbirds, in times past, have been known, when in search of grub and other worms, to pull up a few stalks of young corn. And in the fall, when they are

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gathered in armies, preparatory to emigrating south, they sometimes do give a farewell nibble at the farmer'r roasting ears. The woodpecker, though not partial to ripe cherries, helps himself occasionally to a few of them, when they are plenty. And he has a liking for the reddest side of early apples. Occasionally, in the spring of the year, he visits our corn cribs, when his winter's supply of beech nuts and acorns, which he had laid up in the fall, is exhausted. But I would forgive him for all of these little weaknesses, if he never destroyed a single insect, for the graceful curve which he describes in the air just before alighting on a dead beech tree, and for the example he sets to the slothful, in laying up his winter's store. He never becomes a tramp.

These are about all the charges which can be arrayed against our birds. Nearly all of these can be easily obviated by planting a few more cherry trees, raspberries and blackberries, so as to have a greater abundance for ourselves and some to spare for our conservators, the birds. When all the charges which can be brought against them are properly adjudicated, it will be decided that the case be dismissed from court, with cost against the plaintiff.

But we may be told that we have laws protecting all of the above list of birds. We have such laws, but until public sentiment on this subject is cultivated up to a higher level, no law will be entirely protective.

I had occasion recently to visit the work shop of a taxidermist. His shelves were filled with all sizes and varieties of birds, from a blue bird up to an eagle. On inquiring how he obtained so many birds, he informed me that sportsmen killed them when out hunting game. We know, too, that thoughtless boys, when not successful in finding game birds, try their new shot guns on smaller specimens.

I quote the following from the *Humane Journal:*

"Hundreds of thousands of small birds are caught annually, and flayed alive, for the purpose of procuring their plumage to ornament ladies' bonnets. By this inhuman process it is claimed that the feathers will retain a firmer hold to the skin. The Baroness Burdette-Couts, of England, has placed herself at the head of a movement designed to put an end to this brutal practice. It is hoped she will meet with cordial encouragement and support on this side of the Atlantic."

Thus far I have reserved what I have to say on the quail for the latter part of this paper. This is the bird, in this State, for the destruction of which most of the shot guns are bought, dogs trained, and sportsmen's clubs are organized.

The quail is one of the most beautiful, least harmful, and among the sweetest singers of the feathered tribe. Who among us is not happier for the remembrance of days long ago, in harvest time, when, perched on a fence near by, sat an inimitable singer, trilling his notes as though he were free and was proud of his freedom. To-day if we ever hear "*Bob White*" it is at a long range. Sportsmen and dogs have frightened the music out of him, and he is nearly ready to hang his harp on the willows.

And yet, for all this, the life of the quail is sought after with a perseverance that would do credit to a better cause; all for the sport of murdering the innocents, and the two ounces of dry meat his carcass is supposed to furnish, to ornament a toast.

I have been at some trouble to ascertain on what food the quail principally subsists, with the following result:

In Brewer's History of American Birds, page 471, is the following on the food of quails:

"Their favorite food is seeds and berries of various plants. In late summer and the fall of the year they feed largely on grasshoppers, and on this food they become very fat. They are also fond of buckwheat, corn and other kinds of grain."

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Professor Jordan, the coming naturalist of Indiana, says: "The quail lives, in general, on what chickens and turkeys do, also on the seeds of weeds too small for chickens; also on grasshoppers, locusts, soft-shelled beetles, flies and spiders." He adds: "In Western New York, where I was raised, and where quails once were plenty, I doubt whether I ever saw a half dozen quails in my life. I believe in protecting quails and nearly all other birds, believing that in destroying insects and vermin almost every bird earns its board."

As the quail remains with us all the year, and must eat at all seasons, we know that for the greater portion of each year he can do no damage to our grain crops. The oats and wheat, our principal small grains, do not remain in the field more than six weeks at most; and even then the quail eats little except the scattered grains, which would be of little benefit to farmers if not gleaned by the birds.

Corn does not, on an average, remain longer than six weeks in the field after it is dry enough to be shelled off by the birds, and none but the fallen ears can be damaged by them even then.

Thus it is seen that we have but three months, at most, in each year, when the quails could, if they would, live on an unmixed diet of grain, which of course they do not, as during harvest is the season of grasshoppers, when, according to the eminent authority of Brewer, they are fattening on grasshoppers. Hence during three-fourths of each year they must subsist on seeds of weeds and grasses and insects, all of which are injurious to the farmer and gardener.

The single fact that six hundred chinch bugs have been found in the crop of one quail, is worth a volume of fancy on the damage they do to our grain crops. Take, for example, a specimen of this kind of logic from the *Evening News* of February 7, 1877. In an editorial on a failure to amend the game laws, by our last legislature, the editor makes the following comment:

"The failure of the bill to prevent the killing or capturing of quails for five years, though it may not be fatal or final, is comforting to those who have been disheartened by the ineffable folly that could devise or defend it. * * * He might as well have provided that no peaches should be eaten for five years, nor potatoes be dug for ten years. Both would be of the same order of idiocy." He continues with the following startling result: "One of our cotemporaries shows that under a vigorous enforcement of that measure, the expiration of the period of probation would see the State suffering from the infliction of four thousand millions of quails, or over two thousand for every man, woman and child in the State. And in the meanwhile they would have eaten every bushel of corn and wheat, not only in the State, but in the United States."

This is a specimen of vigorous writing bordering on recklessness. I can see but one possible advantage such an array of facts can have, and that is that the editor of the *News* makes it easy to comprehend how the Children of Israel were sustained exclusively on a quail diet, without providential intervention. The wilderness had a game law, which had been rigidly enforced just five years when the Israelites arrived.

But, seriously, does not the editor of the *News* know that quails have other enemies besides men and boys, which destroy the premises on which his calculation was based? The hawk, owl, skunk and cats all live in part on quails. Long continued snows in winter destroy them by starvation. Wet summers drown out the young birds. Besides, long before we would suffer from a surplus of quails they would starve for the want of the four billions of bushels of grain a year which the *News* man supposes they would devour. Or does he believe that under the game law we are all to do nothing else but feed quails? If so, he left out one important

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factor in his calculation, namely: the time it would require of us to feed the birds.

Suppose we have two thousand quails for every man, woman and child in the State. Then taking out all the feeble, the lame, the halt, the blind and the idiots, including the editor of the *News*, who of course could not be expected to go on duty, there would, at a fair estimate, be three thousand birds to each able bodied man, woman and child in the State. For each one of us to hunt up three thousand birds every day, and measure out to each one a half a gill a day, the year round, would keep us so employed that we would not find time to read the *Evening News*, nor to raise the grain to feed our birds. Hence we would be compelled to import our bird feed from foreign countries.

Now, this is nonsense, of course; but the nonsense grows out of the premises furnished by the *News* man, and not from any desire on the writer's part to treat serious matters as a jest.

The truth is, there is no danger of this alarming increase of quails. The supply of food other than the grain of the farmer, which is not to be had by the birds for more than three months in the year, would so regulate the number of birds that we need have no fear of being overrun with quails, and yet be sufficiently abundant to keep the insects in check.

It is unnecessary to state to this Society the terrible and increasing ravages which pestiferous insects are making on our fruits and vegetables. It is enough, in many instances, to make us despair of ever succeeding in horticulture. There is scarcely a fruit or vegetable cultivated in the State which does not require the utmost vigilance to bring it to maturity unharmed; and with all our care we often fail.

Under these discouraging circumstances what is the remedy? Without hesitancy, I would say, call off the sportsmen, and teach the farmer boys, by law and gospel, to love the birds too well to kill them, or allow others to do so.

I have made some effort to ascertain who are most destructive to birds, professed sportsmen, or farmers and their boys.

The President of this Society, Mr. Johnson, obtained the following facts for me from Indianapolis:

"Eight commission houses have, during the month of November, bought and sold about one hundred dozens of quails each. Those purchased and sold outside of those houses, in the city, will probably amount to five hundred dozens more, making in all one thousand three hundred dozens, during one month. Judging from past years, the amount consumed during the next two months will be double for each month."

Thus it will be seen that Indianapolis alone will probably consume 78,000 quails this season, or nearly one quail to each of its inhabitants. At this rate the whole State would consume nearly 2,000,000 of quails this year. But to be liberal, let us suppose the Indianapolitans eat more quails than those living outside of the belt railroad. Then it will be safe to place the estimate of quails consumed in Indiana at 1,500,000. Now, if in the crop of one quail was found six hundred chinch bugs, it will he logical to multiply the six hundred bugs by the two hundred days it is supposed that quails live on insects. This will give the number of chinch bugs, or their equivalent in other insects, which one quail will devour in one year. This would give 61,000. This, multiplied by 1,500,000, the number of birds killed, gives the enormous sum of 90,000,000,000 of bugs, or their equivalent, or forty times as many bugs as there are dollars in our national debt, which is generally considered a big thing. This is what our dead quails might have consumed in one year.

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If any man thinks that the ounce and a half of quail which falls to his share is worth more to him than to have 90,000,000,000 of insects destroyed in the State, I know of no argument which would reach him. But to such as can, and are willing to reason on this subject, I would urge that we use our influence to have a stringent game law enacted in our State. Let no small bird be killed in Indiana for at least two years.

Then if we find we are being devoured by birds, our law makers can turn loose the sportsmen for a season, until a proper level is reached between the contending forces of life and death.

There seems to be a wide difference between our farmers and sportsmen, as to which party kills the most quails.

I have little interest in this controversy. Let the farmers and sportsmen settle this matter among themselves. If it shall turn out that the farmer is the chief sinner, then I would say he is the gentlemen for which this paper was principally written.

Mrs. Helen V. Austin, of Richmond, at my request, called on a sportsman of that city, and obtained the following statement:

"One proprietor of a restaurant says (December 1), I have bought about one hundred dozen quails this season. Out of this number, at least seventy-five dozen were bought from farmers. Another dealer in game says three-fourths of his birds are bought from farmers. Another, that nine-tenths of his were bought from farmers. A farmer living six miles from Richmond, owning a four hundred acre farm, brings more birds to town than any other man."

Now, it makes little difference to the object of this paper, whether the farmer or the sportsman is the greater offender. The birds are killed, and it is about the same to the birds and the interests of the horticulturist and farmer.

And let this be as it may, we have the authority of the Richmond *Palladium*, for the statement that on the last of November the quails were being so thinned out that it was not profitable for sportsmen to hunt for our market.

There is one point as between farmers and sportsmen, about which we can not be in doubt. When an effort is made in our legislature to have a protective game law enacted, the sportsmen's clubs, through organized effort, bring such influences to bear on our average statesman, that he succumbs to their arguments, so far as to compromise the quail, and the interests of our farmers, who do not combine their effort to counteract the evil.

Two years ago, the then president of this Society, Joseph Gilbert, said in his address:

"At the last session of our legislature a bill was passed in the House for the protection of the blackbird and quail; but in the hurry at the close of the Senate, and through opposition of hunting clubs, it did not come to a final vote in the Senate."

At the same meeting of this Society, in the discussion of the game law, president Gilbert said:

"It would not be possible to procure a better law, owing to the strenuous opposition of sportsmen's clubs throughout the State. We had better let well enough alone."

Has it come to this, that in the case of life and death, and where the interest of ninety-nine out of every hundred of our citizens is to be promoted by legislation, the hundredth man is to go up to any state capital and veto our best enterprise.

What interest has the sportsmen in this subject common to the masses? What does he know or care about the ravages of the codling moth, the bee miller, the curculio, the cabbage worm, the currant worm, or the Colorado potato bug?

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I do not class sportsmen among thieves; far from it. Most of them are only mistaken gentlemen. But I would, were I legislator, as soon consult thieves and counterfeiters as to the penal laws on those subjects, as to ask the advice of sportsmen on the game laws.

Our people, including our representatives to the state legislature, need education on this subject. The question should be agitated wherever a hearing can be had, from Granger clubs up to our political rostra, until farmers and farmers' boys would clear themselves of the charge of killing more birds than sportsmen, and our legislators would so shape their enactments on the game laws as to suit the interests of the quails and horticulturists.

We ought to furnish short articles for every newspaper in Indiana on this subject, calculated to enlighten the dark corners of our State, so that when our legislature next meets our representatives will know that they have instructions from those who are entitled to be heard.

And just here it may not be out of place to inquire what is to become of us as a people if this sporting mania is to increase a few years longer. If it were possible for a stranger from a distant planet to visit this part of our globe, and he were to read a few of our daily papers, he would come to the conclusion that almost our sole occupation is horse racing, ball playing, boat racing, theater going, shooting and being shot. Are there not fears that we are rapidly approaching a period in our history like that of the last days of the Roman Empire, when fighting and public games were the sole occupation of the true citizen? Is it not possible that the same wild infatuation is reaching us? If so, who can predict the end.

This shooting madness has grown on us until life is held too cheap. The bull fighting in Spain, to read of which in times past curdled our young blood, has its equal or worse in the inhuman sport of pigeon shooting. Think of a thousand men being congregated to gamble on the result of who shall kill the most innocent pigeons; and this all under the mild term of sport. And this is in the fourth quarter of the nineteenth century; and we the most civilized and christianized people on the face of the globe.

To prove how cheaply we are learning to estimate even human life, it were only necessary to observe the flippant manner with which our daily papers are filled with accidental deaths, suicides, and down-right murders. The Indianapolis *Daily Journal* of the third inst. furnishes notices of six accidental shootings of sportsmen—three of them fatal. All of these notices did not occupy as much space or comment as did the last play in an Indianapolis theater.

In conclusion, let me suggest that humanity would not be the loser if we were to cultivate more of the spirit of our lamented Lincoln, who said: "If the world were to depend on me for their butcher, they would starve."

DISCUSSION ON BIRDS AND GAME LAWS.

MR. GILBERT—The writer should not make a distinction between farmers and sportsmen; farmers are often sportsmen.

NICHOLAS OHMER—We have a pretty good game law in Ohio. Seven-eighths of the farmers in Montgomery county have prohibited sportsmen from coming upon their land. I have something to say about the robin. I appreciate all that about the beauty of the robin in the spring, etc. I have my doubts about them destroying

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the white grub; they eat the red angle worm. The idea that we must raise fruit enough to supply the birds is not practicable. They come in flocks, with ample reinforcements to sweep the whole crop. The robin is "a robber," a humbug, a nuisance. I am done with him; I will be his friend no more.

MR. COOK—There is one class of farmers who are sportsmen; they claim all that comes on their farm; they work destruction among the birds; they are not real sportsmen, but are those who supply the market with prairie chickens, quails, etc. But the robin: some years ago I noticed an insect on the small fruits; I also noticed that the robins ate these insects; this last summer they came and got their share of the fruit, but I believe devoured more insects than fruit.

MR. OHMER—You didn't have the robin as bad as I had.

W. H. RAGAN—I have often remarked that we have a law* which ought to protect our farms against sportsmen. A hunter is a trespasser on any farm where he has not permission to hunt. It is unnecessary to put up a notice under the present law. Have heard it stated that the duck will eat the Colorado potato beetle. The quail and blackbird are friends to the farmer. I have seen blackbirds follow the plow and eat the white grub; when they could not swallow any more, they pinched them with their beak and left them dead.

PRESIDENT JOHNSON—I wish the writer of this paper was here to take part in defending his friends. I am a friend to the robin, though I complain of the blackbird—he takes the raspberries. Quails are on the decrease; one gentleman in Indianapolis, a restaurant keeper, told me that during three months the present winter he was not as likely to get as many quails as he used to in one month. I am ultra; I do not want any birds killed—hawks not excepted.

MR. COOK—My experience has been that sportsmen show much respect for the law.

MR. JOHNSON—In regard to the potato bug; a tame crow in our neighborhood was in the habit of going around with the neighbors when they were picking the potato bugs from the vines, and it was discovered that it ate them. Guinia fowls will eat them, it is said. As to the sportsmen, they come about before the time has expired for protecting the birds.

MR. BEELER—I am not as ultra as our president, yet I am a friend to the birds. There is a class of roving persons, vagrants or

* See State laws affecting horticulture, in this volume.

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whatever they may be called, that you can do nothing with. Nine-tenths of the class that kill the birds are fellows that you do not know, and you can not reach them by law. Black birds were very destructive to corn fields in early days. The cat-birds and a species of sparrow destroy the grapes. Blackbirds build in my lawn and do not disturb my raspberries.

MR. OHMER—I am glad you have so good a game law in Indiana. In Ohio it is necessary to post a farm. The way is to prosecute parties that hunt on the premises without permission. The time is coming when sportsmen will ask permission.

MR. BEELER—A real sportsman will not trespass; but there is a class who are not afraid of prison, and fines are nothing to them.

MR. COOK—We should call upon the police force and have these scallawags tried and punished.

J. C. RATLIFF—Regarding the English sparrow; I have failed to see any good resulting from their introduction to this country. I regret to see them in the streets of Richmond. They are not insect-eating birds, they are only scavengers in the city and fight and drive away other birds. This class of persons who hunt our birds, are in many instances vagrants. The difficulty is in getting the proof, in order to prosecute them. Policemen arrest boys in the cities for throwing stones at English sparrows; why not protect other birds? Our Society has done more towards protecting birds, than anything else. We have educated public opinion, and will more and more. We have written on the subject and called the attention of the people to it. I have some fault to find with the robin, but he is a friend, when we come to balance accounts. I never allow any bird to be killed on my place, but the difficulty is in getting the proof.

DR. FURNAS—Execute the law. The testimony of the owner or occupant of the ground is the requirement; make affidavit, the penalty is five to fifty dollars.

MR. BEELER—The difficulty is to know these men.

MR. GILBERT—All that is needed is to execute the law. I never had any trouble on my farm. In every case, when I have asked men to go off, they have done so. Every true sportsman and gentleman will go off. Make an example of the scalawags.

MR. OHMER—Mr. Bateham says the English sparrow is considered a nuisance in England. There is a reward offered for their scalps.

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MR. JOHNSON—Mr. Ratliff alleges that the English sparrow is a scavenger. That is in their favor. I have not observed that they drive away other birds.

MR. BEELER—Said the reason the other birds had left the State House yard at Indianapolis was, they were afraid the venerable old building would fall down!

MR. RAGAN—Read an extract from an article in defense of English sparrows.

MRS. OREN—The two years that I spent at Indianapolis as State librarian afforded me an opportunity to observe the habits of the English sparrows. The first year after they were brought there they quarreled and fought with the bluebirds and other birds that had occupied the State House yard for years. Some of the bluebirds maintained their rights the first year, but the next summer the English sparrows were the sole occupants of the boxes that had been put up for the bluebirds. All the other birds were gone.

CAPT. BURKE—The year I came here there were a lot of English sparrows brought to the Campus, but they soon left Purdue and went over to the city. That convinced me that they are not agriculturists. They do not earn their living by the sweat of their brow, but prefer the city soup house! When I came here sportsmen with dogs and guns roved around over the farm. I told them to leave, and they left. I am satisfied that in most cases, if sportsmen know they are trespassers, they will leave.

DR. FURNAS—When I was in Philadelphia, last summer, I admired the little chirping tame English sparrows in Independence Square, but I noticed a great number of the webs of caterpillars on the trees, and I concluded that the sparrows did not live on the worms that were injuring the trees.

MR. RAGAN—There is one point on which Mr. Gilbert is not right. It is not necessary to put up notices under the existing law. It is a trespass to hunt on the premises without getting permission. Let sportsmen come and ask permission.

DR. FURNAS—I believe in posting a farm. I don't want to come in contact with a man if he is stouter than I. Besides, many persons are not acquainted with the law, and it is better to have the farm posted to doubly secure the owner.

MR. SAMPLE—There is an unprincipled, irresponsible class that it is hard to identify, and who, if prosecuted, would take revenge by injuring the owner personally, or by setting fire to his barn. These outlaws defy the farmer.

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SMALL FRUIT CULTURE.

Mr. Nicholas Ohmer, of Dayton, Ohio, was called upon to give his experience in raspberry culture: I am testing eight or ten new varieties, the Gregg, Brandywine, Turner, Delaware, New Rochelle, and some others. The Mammoth Cluster is the raspberry—it is the one we stand by. It is the commercial berry. The Gregg is large; I am well pleased with it. There will be a great demand for the plants when it is better known. I have tried them two years. I am asked about the Philadelphia; our people do not like them; they are tender, easily injured by the frost, not a good commercial berry. The Delaware I have not yet fully tested. I am not partial to ever-bearing raspberries. I want each fruit in its season. Raspberries should have rich soil, good, rich clay ground. I plant in rows six feet apart. If not tied up to wires they should be clipped back. Ought to be planted early in the season.

Dr. Furnas—The Herstein requires sandy soil. All the red raspberries with me are failures, unless I could find some way to stop their growth.

Mr. Ohmer—The way to do that is to stop cultivating. Mulching retains the moisture and keeps down the weeds, but I can not mulch. I mow down the weeds.

DISCUSSION ON STRAWBERRIES.

Mr. Cowing—The Col. Cheeney is prolific, but will not carry. The stem is short, and the berry gets down in the mud. I have all the prominent available varieties.

Mr. Ohmer—Strawberries are variable; they do well here, and not well there. Because I or some one else has success with a certain kind, it does not follow that the same kind will do well in soil that is different.

LOCATING THE NEXT ANNUAL MEETING.

Mr. Ohmer made some remarks in favor of holding the conventions in small places. He was asked jocosely how much Dr. Furnas had paid him for that speech? He replied: "I did not know Dr. Furnas had an axe to grind. However, I am glad if I turned the grindstone while he held the axe. I hope he got a sharp edge."

The subject of locating the next meeting was pretty fully dis-

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cussed. Dr. Furnas nominated Danville; W. H. Ragan, Greencastle; and President Johnson, Indianapolis. The claims of the several places were urged. Upon the vote being taken, Danville and Indianapolis were a tie, and the President cast the vote for Indianapolis.* Adjourned.

SECOND DAY.

EVENING SESSION.

The Society met at 7:30 P. M.

SECRETARY RAGAN moved that the following persons be added to the list of honorary members: Mr. Cornelius Ratliff, Mrs. Mary P. Haines, Mrs. Helen V. Austin. Carried, by a unanimous vote.

PROF. THOMPSON, of Purdue University, read the following essay:

INDUSTRIAL EDUCATION AND LABOR.

BY PROFESSOR THOMPSON, OF PURDUE UNIVERSITY.

When first asked, a few weeks ago, to read a paper before the Indiana Horticultural Society, my first impulse was to say no, because I am not a practical horticulturist, and I feared that I might not be able to present anything that would be interesting to such a society. Although not a professional fruit-grower, I have lived for several years in one of the finest grape-growing regions of the country—the islands and south shore of Lake Erie, at Sandusky, Ohio. I once owned a vineyard of an acre and a half, the vines of which I planted and reared, from cuttings to maturity, with my own hands. I also planted strawberries, raspberries and blackberries for market. Notwithstanding these pleasant little episodes of my life, I shall not presume to instruct you upon grape growing or small fruit culture.

Having been a professional teacher all my life, and for several years past a teacher of those subjects that seem to have a practical bearing upon the industries of our country, I have selected for the subject of a few observations, "Industrial Education and Labor."

It may seem strange to some of my hearers that I should think it necessary to make a plea for practical education or educated labor. But you will acknowledge that although *you* may not need such arguments, you have neighbors and acquaintances who do need them. You may say that such persons are not here to-day, as they are not in the habit of spending time and money to listen to theories or the practical experience of intelligent laborers. But in addressing my present audience upon this subject, I hope to arouse you to the necessity of enlightening your skeptical friends and acquaintances.

If we look back one hundred years or more we must be convinced that a great

*NOTE.—Afterwards changed to Danville.

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change has taken place in the implements of labor. Instead of stirring the soil with a stick, the root of a tree, a wooden plow, or even with the old time "barshare," we have the improved steel and steam plows of the present time. Instead of rubbing out the grains of wheat between our hands, or tramping them out with the feet of animals, or beating them out with the "flail," not failing to beat our heads occasionally, we have machines that not only thresh the grain, but also clean, measure and sack it in one operation. Instead of cutting an acre of grass with a hook or scythe, accompanied with contortions of the body from early morn till dewy eve, we may ride at our ease on a sulky mower, and cut ten acres with much less of pains and aches. Instead of cutting wheat, a handful at a time, with a sickle, we have machines that cut it by the wholesale, and rake and bind it at the same time. The modern grain-drills, corn-planters, cultivators, hay-rakes, hay-pitchers, are marvelous improvements over the former implements used for similar purposes.

We might go on and enumerate the changes that have taken place in other departments of labor besides that of the farmer. But enough has been said to call to mind that a wonderful change has taken place, and is continuing to take place, all over our country. But why do I call your attention to these changes? I wish to make the inquiry, How these changes have taken place? Have ignorant and unthinking men invented these labor-saving machines? Who have invented, manufactured and brought forward the corn-planters, the grain-drills, the mowers, reapers and other machines of this kind? Have they been ignorant or intelligent men? Have they been unthinking or thinking men? Have they been familiar with the principles of science, or have they despised "book larnin'?"

Not only is knowledge and training necessary to produce these labor-saving machines, but intelligence and skill are necessary to use them. A man may be able to use a hoe or a sickle, and yet be totally unfit to manage a threshing machine, a mower and a reaper. Some knowledge of mechanics and of the principles of machine construction would often save a man hundreds of dollars in breakage, wear and tear of such machinery as he is compelled to use in these days of close competition.

COMPETITION.

This matter of competition is becoming a subject deserving the most careful consideration. In former times, if men were as skillful and intelligent as their immediate neighbors, they had nothing to fear. It is altogether different at the present time. Every man now must compete more or less with the whole world. The multiplication of telegraphs, steamships and railroads has brought the world's skill to the doors of us all. No country is far away from us now. In five minutes we may send an order for goods to France, and in two weeks' time display the same upon our counters. The farmer in Indiana must now compete with the farmer in Russia, for every bushel of wheat raised in that country affects the price of wheat in this country. A wagonmaker may be the best in his town or county, but still he is not safe. He must be the best in his State, the best in his country, yea, the best in the world, before he is free from this consuming competition. Whatever of success ignorance and stupidity may have had in the past, let no father suppose that his son or daughter in the future can compete with the combined training and talent of the world, without the most careful attention to those studies that have a bearing upon the intended occupation or profession.

We have only to cast our eyes about us to behold some very striking effects of competition between ignorance and intelligence. For a few years past our country has been overrun with paupers, idlers and tramps, who seem to have nothing to do, and apparently can get nothing to do. Are they educated or skilled workmen who

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are obliged to live this kind of a life? Occasionally an efficient laborer, through sickness, misfortune or dissipation, may be found in this unfortunate class, but you know that the great mass of these idlers and beggars have no skill nor intelligence to bring into market. They can do nothing but the simplest and most unskilled of all labor. So useless are they, that if they should honestly apply themselves they could not earn their food and clothes.

In these depressing times, when competition in some occupations is very great, an individual education enables its possessor to turn his hand to another trade. The ignorant, "rule of thumb," workman can not do this, but must work in his little narrow groove or not at all; hence, when times are unpropitious, when trade is "dull," the first to be sent adrift is the ignorant and unskilled workman.

DIGNITY OF LABOR.

We hear a great deal from certain quarters about the "dignity of labor." Be not deceived by these rhetorical effusions. All brain labor is not dignified, nor is all manual labor dignified. The dignity of manual labor depends on the motive—on the amount of thought, intelligence and skill connected with its performance. The man who digs up his field with a stick instead of a spade, or with a spade instead of a plow, when these instruments are accessible, does not demonstrate the dignity of labor. The man who drags his firewood from the forest on the ground at the end of a rope, when a wagon and horses may be used, does not dignify labor.

The way to dignify labor is to show intelligence and skill by taking every possible advantage of the laws of nature and science. One man knows of no way of removing a large stone from his pathway, except to call in several of his distant neighbors to assist him to roll it to one side. Another man performs the same task alone in one-tenth of the time by means of a simple lever. Which one exemplifies the dignity of labor? If the dignity of labor consists in putting forth mere muscular strength, a donkey is as dignified as a man, and a mule is much more so. If labor would be respected and respectable, let it not ignore education. Let the young understand, then, that there is a true dignity of labor—that which seizes every suggestion made by the laws of science, and uses it so as to economize labor.

The manual laboring classes sometimes complain that they are oppressed by unjust legislation, that their rights are not properly regarded by our law makers, and that those who are more intelligent than they are take advantage of their ignorance. The proper remedy for all these wrongs is education. If laborers, whether agricultural or mechanical, would compete with other classes of society for the honors and emoluments of the world, they must be educated. Let them educate, and "the scepter and crown of civil service will return to the plow and pruning hook." "It is by their neglect of learning the farmer and mechanic have lost the power they had in the days of Cincinnatus and Washington. If a man would be great, he must know. If he would rule, he must understand the thoughts and ways of men. There is but one alternative in this matter. The farmer or mechanic may study and prosper, and rule the world, or he may repudiate education, denounce the agricultural schools, and remain the serf and burden-bearer of the nation."

All the professions have their colleges and universities, and young men who expect to become lawyers, doctors, theologians, warriors, navy officers, or business men, spend years and much money in preparation for their duties. A boy who graduates from a grammar school or country school is not considered fit to be a

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lawyer, doctor, preacher or a soldier. Why should he be any more fit to be a farmer, a builder, a machinist, a horticulturist? He has only learned the use of the tools by which to obtain an education. With these tools he goes to the technical school, and, if he is to be a doctor, he studies anatomy, chemistry, and the effects of medicines. If he is to be a minister, he studies theology, church history, the differences between creeds, and the best methods of presenting truth to the minds of the people. If he is to be a lawyer, he studies Blackstone, logic, rhetoric, common law, and whatever else may have a bearing on his success. If he is to be a soldier, he studies military tactics and the art of gunnery. But how is it if he is to be a mechanic or a farmer? What preparation has he for competing with the educated artisans of other countries? He has none, except what he can pick up from the common schools. Reading, writing and arithmetic are enough for him.

The professional man starts in life with a trained mind, and with an honorable ambition he seizes the most desirable prizes offered by the world, while the ignorant man can only look on and complain. On the field of battle the heaviest battalions win. Let it be understood that power of mind and spirit will in the end triumph over ignorance and physical force. To the farmer, the mechanic, the laboring man, we would say, you are "the architects of your own fortunes." Education and a proper training of the mind, the eye and the hand in your various trades will make you the peers of any class in the world.

INFLUENCE ON THE STATE AND NATION.

Having considered some of the advantages of industrial education to the individual, let us look for a moment at its bearing upon the prosperity of the State and Nation.

We are in the habit, semi-occasionally at least, of boasting of our free institutions. It is true we do not now look to England for our kings and rulers, for our laws and law makers. But in many respects we are the veriest slaves to England, France and Germany. We once had the manhood to object to "taxation without representation." If I should ask you to what foreign countries we pay tribute, you would probably answer, to none. Is this answer true? We may not be paying any tax or tribute directly assessed by a foreign government, but we are paying hundreds of thousands, and even millions, of dollars for art manufactures which we ought to produce at home. But, you answer, these are mere luxuries, and not necessities, and that we can live without them. This again is not strictly true. We have gone so far in the matter of general education and refinement, our citizens have traveled so much, and the desire for beauty is so universal, that beautiful art manufactures are a necessity to our happiness. These things are no more luxuries in a highly civilized state of society than warmth or clothing are a luxury to any state. Let us cease, then, to boast of our freedom until we can make ourselves independent of foreign handiwork—until we can put as much skill in our art manutures as any foreigner on the globe can put into his. So long as we are unable to supply the objects of industrial art, which our tastes, cultivated by education and study, demand, we are the servants of those nations which produce them, and we shall be obliged to send millions of dollars every year for the importation of high priced foreign goods.

Let us bring this argument a little nearer home. We in the West and South sometimes feel jealous of the pecuniary success of the Eastern and Middle States, which are more extensively engaged in manufactures than we are. We complain that they fix the price on what they buy of us, and also on what they sell to us.

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This is true, and it will continue to be true until we educate our workmen—until they are as skillful as they are in these Eastern States. Must we enter into an argument to show that it is a ruinous policy to send our timber, wool and cotton to the East, there to be manufactured into various grades of fine furniture and cloth and then sent back to us? Who pays for this transportation both ways? You know that the consumer pays it. Who pays the interest on the capital thus engaged in this change of raw material from hand to hand? You know that the consumer is almost consumed by this burden. But, you ask, how can he help himself? Only by establishing manufactories near to the raw material. But how can we establish manufactures here in the West so as to compete with the East? Only by having as skilled workmen as they have. How shall we get the skilled workmen? Only by teaching our boys and young men those things that will give the quick eye, the cultivated taste and the skillful hand.

Massachusetts in 1870—and other Eastern States have since followed her example—inaugurated a system of industrial drawing in her common schools which will surely enable her and them to hold us in their avaricious grasp more firmly than we are at present. Our only defense is to arm every boy and girl with a lead pencil, ruler and compass, and teach them how to use them.

Dr. Furnas followed with a lecture upon grafting, pruning, etc., using small trees and cuttings to illustrate his subject. This lecture was intended especially for the students of the University. Dr. Furnas was very entertaining and humorous.

He began by saying that the science of propagation was an important thing. You ought to know about the circulation of sap. In grafting you must approximate the edges. Trees grow in winter. Tulip roots and onions grow in winter. If you ask me how this is, I say I do not know. There are lines of distinction between related plants which you must learn. Illustrated tongue-grafting. Pack away your grafted roots in a box of very decayed saw dust, that no fermentation will take place, and put in a cool cellar. Be sure in packing to leave the top bud out. Illustrated cleft-grafting and inarching branches of trees, and also trees that were injured in the trunk. A tree that is damaged three-fourths of the way round, I would throw away, unless it is some extra kind. In grafting roses, cut scions of last years growth; you can cut scions all the winter, if it is not too cold. If frozen, put them in cold water—treat them as frozen fingers. I cut my scions about the first of December. A preventive against field mice is to make a little mound around the trunk of the tree. Pruning.—If I want to make wood, I prune in the spring, say about sugar-making time. If I want to make a tree bear fruit, I prune about the last of July or first of August. Never prune when frost is in the tree. Do not prune too much. There is an orchard in Hendricks county that has been pruned so scientifically that it has never borne an apple. I am un-

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educated, as I told you, but I promised to communicate to you some of the things which I have learned. I thank you for your attention. If Downing, when he had accomplished so much in his latter days, concluded he had only begun to learn about trees, was correct, what shall I say of my little knowledge?

Dr. R. T. Brown, being present, was called on. The following is a synopsis of his remarks:

I do not want to disappoint an audience. I used to think that I knew something of vegetable life, but from year to year I find I know less; if I live to the end of this century I will know nothing. You have no business to let a mouse or a borer destroy your trees. Take heavy tarred paper and wrap it around the lower part of the trunk, close down to the roots; no mouse will touch it, and the borer is disgusted. Heavy brown paper will do, or even newspaper. You need not take a knife and kill the tree in order to cut out the borer. If I were setting out an orchard, I would wrap the trees with paper clear up the trunk, as a protection against the sun. In using common paper there is some danger from the coddling moth. In the winter, when snow is on the ground and the sun shines on the trees, the bark is injured. Light has a peculiar effect upon things that are frozen. Take two frozen apples, put one in the dark, another in the light; the one that is exposed to the light soon decays; the one that has been in the dark comes out almost uninjured. I used to think I knew something about the philosophy of light, but I find that I do not. Roots do their work in the dark, leaves in the light. If you carry trees in a wagon, unprotected from light, on a March or April day, for the distance of fifteen or twenty miles, your trees will not grow. I knew a man who bought fifty trees and took them home on a rainy day, set them out early next morning when it was dull and cloudy; all but one tree grew. He went again for another load to the same place, brought them home unprotected, with a warm sun shining upon them. Out of the fifty, eleven grew. The man thought the moon had changed; he came near guessing it, for it was the sun. If you let the sun shine on the roots of evergreen trees, you kill the tree. In answer to a question about the curculio, Dr. Brown said: You need not come to me about the curculio; as the Irishman said, "he is the gentleman in this country that has got the better of me." It has been demonstrated that where a plum tree hung over the water the fruit would be free from the curculio. The instinct of the curculio prevents it from depositing its eggs above water. If we would graft on wild plum trees that

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would grow in soil kept wet constantly, we might have good plums. Dr. Brown concluded his remarks by saying: There are some points in Prof. Thompson's essay which I wish to speak of. In boys and girls who are raised without habits of industry you have but a poor chance to give them an education; you can't do much with them. Prof. Thompson said that education promoted industry. I say industry promotes education. We are over-doing the cities and under-doing the country. The demand exceeds the supply on the farm; the supply exceeds the demand in the city.

Dr. Furnas was called upon to give his experience in the propagation of grapes:

When I commenced the propagation of grapes, the cuttings were worth as much as guano was by the same weight. A cutting bed must be made of sand, not too fine; must have bottom heat, hot water or flue. Keep the buds back till the callous is started; merely cover the bud with sand; have two buds on your cutting; place the box facing the south. After a while water and raise the degree of heat. Plant them out when the frost is out of the ground. To propagate grapes by layers, take a cane that has grown last year, about two feet long; when it sends up shoots, take a spade and cut them apart.

Mr. Ohmer—As to mice injuring trees, if you throw up a mound around the tree, and do not let the grass grow, the mice will not trouble it.

Prof. Hussey—If you girdle a tree close to the ground without scraping the inner covering of the wood, and bind up with cloth, the tree will not die. I disagree with Dr. Brown about the effect of light. It is the drying up of moisture from the roots of those trees. Dr. Brown says it is the light; I say it is the absorption of moisture.

Dr. Brown—How about the frozen apples?

Prof. Hussey—I don't know; would like to try the experiment; not that I doubt Dr. Brown's word. I disagree, too, with Dr. Furnas, about the tulip and onion growing in winter. I do not think it is so.

Dr. Furnas—I believe tulips and other plants grow when the ground is frozen. Look at the fresh white roots attached to the bulb when taken up as soon as the frost is out of the ground.

Prof. White—Thought those roots grew after the frost was out of the ground.

L. B. Custer—The water at the roots of the plants cause them to send out fibres very quickly when thawed out.

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PROF. HUSSEY—Plants can endure much cold. A dandelion bloomed out a week ago in the lawn; chickweed and various plants are not easily killed with frost.

Prof. White made some suggestions in regard to holding a series of horticultural institutes in those places where they were most needed, of three or four weeks duration, and employ practical men like Dr. Furnas to tell what they know, from actual, practical knowledge. It has been done in Ohio. I like to hear men tell about what they know from experience. As regards our orchard here, no one has particular charge of it but the mice. It is not in a desirable place, and has been neglected. It is our intention to plant a new orchard. We have made the campus a temporary nursery. The trees are too thick, and it is our intention to plant them out to the best advantage.

Adjourned.

THIRD DAY.

CLOSING SESSION.

The Society met at 9 o'clock, President Johnson in the chair.

The report of the Committee on Resolutions was read by the Secretary, and unanimously adopted. It is as follows:

REPORT OF THE COMMITTEE ON RESOLUTIONS.

Your Committee on Resolutions respectfully report the following:

In the assembling of this Society here, its officers and members feel that the choice of this location was a good one, and, indeed, that our lines have been cast in pleasant places.

Resolved, That it is with feelings of pride that we look upon the embryo efforts in the direction of establishing on a permanent and useful basis the farmers' college of Indiana—Purdue University.

Resolved, That the aid contributed by the members of the Faculty of this University to the general interest has been a source of pleasure and profit to us.

Resolved, That the kind and polite attentions shown the members of this Society by citizens and others have placed them under lasting obligations.

Resolved, That the attendance of the students of this institution, during our session, has not only shown their appreciation of the refining influence of horticulture, but also their good deportment and intelligent looks augur well for the future of Indiana.

Resolved, That the thanks of the Society are due the various railroads centering at this place for their liberality to members and others attending the meeting; to the citizens of Lafayette and vicinity for their kindly attentions; to Mr. and Mrs

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Hall, of the University boarding house, for their efficiency in providing for the temporal wants of such of our members as have been assigned to their care; and to the various contributors to our entertainment of papers and essays, especially to those intelligent ladies, Mrs. Haines and Mrs. Austin.

Respectfully, A. FURNAS,
Chairman.

PRAIRIE FARMER.

A communication from the editor of the *Prairie Farmer* was read by the Secretary:

OFFICE OF THE PRAIRIE FARMER,
118 MONROE STREET, CHICAGO, December 18, 1877.

W. H. Ragan, Esq., Secretary:

DEAR SIR: I had hoped to be at your meeting at Lafayette this week, but find I can not get there, and ask you to give us such a report of your meeting as your time will allow you. Many of our readers will be interested in the proceedings of your Society.

Truly yours,
PRAIRIE FARMER CO.
(H. D. EMERY.)

The Secretary was requested by the Society to prepare a report of the proceedings for the *Prairie Farmer*. This evidence of interest in our deliberations on the part of our neighbors in Illinois, was fully appreciated by the members.

JOHN A. MENDENHALL.

Daniel Bulla delivered a message from John A. Mendenhall, of Richmond, expressing his regrets that sickness prevented him from meeting with the Society, as had been his privilege on former occasions. Members expressed themselves as regretting Mr. Mendenhall's absence, and deeply sympathizing with him in his afflictions.

Dr. Furnas distributed scions of several new varieties of apples. Among them was the Indiana Favorite, a seedling of the Vandevere pippin, propagated by Mr. Morris, in Wayne county; and Mosier's Sweet, propagated in Putnam county.

FRUIT REPORT FROM THE ELEVENTH DISTRICT.

BY L. B. CUSTER.

To the President and Members of the Indiana Horticultural Society:

How could we better spend a few days each year than to meet together, giving our different methods of culture and manner of taking care of our products? We can all testify that experience is the best teacher; then, in the practical experience of those present, we expect a rich reward for time and expense in coming together.

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The fruit crop of this district for the past year has not been large nor fine. Apples was such an enormous crop in 1876 that nearly all the trees were entirely exhausted, and a season of rest seemed to be necessary to restore them to a bearing condition, hence very few trees at all bore this year. Winesap, Vandevere, Pippin and Yellow Belleflower had a partial crop, and of some other varieties enough to keep them in remembrance; and now hereafter we may expect, especially in old orchards, alternate years of an over-crop, and then a scarcity. Winter apples are not keeping as well as usual.

Of Pears there was a fair crop in some localities, such as they were. Some trees were full, but, for the number of trees planted, we get but few pears.

As for the Peach, we grow a few trees, but they are neither ornamental nor fruitful. When we want the fruit we go to the fruit dealer and buy it.

We had a very short crop of Cherries. When the trees were in bloom there were several large frosts and cold rains, which killed a large portion of the bloom, and the balance were badly chilled, which caused the cherries to drop off. They kept falling off until they were half-grown. As I have stated heretofore, the Early May (or Richmond) is the only variety worthy of cultivation. The Black Morello continues to be a failure, and surely is a nuisance.

Of berries, Blackberries were a failure with us. The Kittatinny with me was a complete failure this season. The past winter was too severe for the blackberry. The canes were left in bad condition. I fear that we will have to discard the Kittatinny. We are now having the Snyder on trial; think that they will behave better.

The Raspberry continues in well-doing, and did well where taken care of. Mammoth Cluster is taking the lead in Cass county. They seem to be a greater bearer, and fully as hardy as the Doolittle. Both varieties are very popular.

Grapes generally did not do well. With us the crop was light. Considerable complaint of rotting. The Concord is mostly grown. Hartford Prolific, Clinton and several other kinds are grown to a limited extent.

Currants and Gooseberries did moderately well.

The Strawberry did not do as well as usual. Frosts cut the crop short. The Wilson and Green Prolific continue in the lead, but there are a great many other varieties grown, among them the "Monarch of the West," "Colonel Cheney," Jucunda, etc.

As regards our insect enemies, the coddling moth damaged nearly all the apples this season. The common tent caterpillar has not shown itself since they were wiped out of existence by frosts in April, 1875, but the fall web-worm has been very numerous the past two or three years. The canker-worm has been very destructive in a few orchards heretofore, but the past season, by some cause unknown to me, it did not appear in its old haunts, and those orchards had a fair crop of apples this year. The "red-humped prominent" are getting to be quite a pest. In young orchards where the trees are not closely watched they defoliate trees before they are discovered.

C. S. Boggs, Esq., of Kokomo, reports for Howard county the following: Would say the Apple crop was nearly a failure, and what there was was of poor quality. Pears, short crop. Peaches, none. Cherries, light. Strawberries, only medium crop, on account of late spring frosts, but we had enough for the market, as there was no place to ship to, prices running unprecedentedly low in the cities. Strawberries that were cultivated in the hill were, like they always are, very large and fine, and brought in our market eight cents per quart, while slipshod cultivated ones went begging at low rates. Green Prolific and Wilson's Albany are almost

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universally cultivated here. Raspberries, medium crop, and sold at ten cents per quart in our own market. The kinds cultivated for market and profit are Doolittle and Mammoth Cluster. Philadelphia, that we once thought to be hardy, has been abandoned on account of winter-killing. Blackberries, not much cultivated; not considered profitable, winter-kill so often, and when they do succeed there are so many wild ones prices are too low. Currants and Gooseberries, rather short crop. All fruit, plants and trees seem to be in a healthy condition at this time here.

The Secretary submitted the report of the special committee which had been appointed to consider the subject of making an exhibit at the next State Fair. The committee recommended that the Society offer premiums at the next annual meeting, to individuals. Subsequently, Dr. Furnas reported for the same committee, and made a motion that $75 be appropriated for premiums at the next annual meeting. The reports were concurred in, and the motion unanimously adopted.

PLACE OF HOLDING THE NEXT MEETING.

The vote which decided to hold the next annual meeting at Indianapolis was reconsidered, upon being moved and seconded by members who had voted in the majority. Danville and Indianapolis were put in nomination. Danville received the majority of the votes, and was declared the place in which the next meeting would be held.

The Secretary presented memorials from the American Forestry Association, praying Congress to appoint a commissioner of forests.

On motion of Dr. Furnas, the memorials were laid on the table.

D. E. Hoffman presented ten copies of reports of proceedings of the Illinois Horticultural Society, from the secretary of that society. Upon suggestion of members, volumes were distributed as follows: To Purdue University, to the Richmond, Terre Haute and Plainfield Societies, to Mr. Nicholas Ohmer, J. C. Ratliff, Dr. Furnas and others.

DELEGATES TO OTHER SOCIETIES.

Delegates were appointed to conventions of other State Societies, as follows:

To Ohio—Dr. Allen Furnas.

To Illinois—Mrs. Helen V. Austin.

To Kentucky—Joseph Gilbert.

To Michigan—F. Beeler.

P. D. Hammond, of Indianapolis, was then introduced, and read the following paper:

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THE BASE BASIS OF HORTICULTURE.

BY P. D. HAMMOND.

Because we have in this State so great areas of such fertile soil that it keeps up a fair yield of successive crops without much attention to extra enriching, it does not follow that manure is not the farmer's best capital, here as elsewhere. It is fundamental to the progress and highest success of Western agriculture that its line of policy be kept steadily in the direction of high farming and a systematic economy of the soil, not in quantity, but quality. Until our farmers attain unto this principle and its practical application, they will not be good farmers, nor really and certainly prosperous. Neglect of the soil and the prevailing reckless waste of fertilizing elements must be stopped pretty soon, or else Western farming will run down the hill to poverty, just as Eastern farming did with the past generation. The decline will not be quite so rapid as it was on the thin loams of New England, which entirely gave out in a very few years, but it will be as certain. But the custom of high culture and soil economy must begin with horticulture; and you will allow me to suggest that one of the best services that this Society and the leading horticulturists are likely to render the State is in illustrating by their practices the right way to deal with the soil. The whole of China is a garden. Japan does not permit the waste of any animal fertilizing matter, either solid or liquid, human or brute. So all the older countries, I am told, astonish the American traveler by the complete utilization of all the land and the perfection of its culture. It may be that some of our horticulturists, and even a few farmers, enrich their crop soils to a high degree. But it is certainly true a single example of thorough economy in fertilizing elements would be very hard to find. Excuse me for being explicit, practical and emphatic on this unromantic topic; there are strong reasons for being so. Only plain talk will have any effect, and that, I suspect, but very little.

I was amazed, not long ago, while inspecting the grounds of a noted and very progressive horticulturist of this State, to find right in the corner of his garden,—which lacked a good deal of reaching the standard of high farming fertility,—a family out-house in a repulsive condition, and really a cause of great danger to health. Why, in the name of science, of intelligence, of passable economy, to say nothing of common decency, was this? No matter. Here is the place to begin, especially for the scientific horticulturist. The first thing to be talked about is the soil. Varieties, propagations, modes of culture and treatment, protection, entomology, quality of product, profits, sentimentality, flowers, fruits, adornments, poetry, and all the rose-colored sequences, are out of place till the preparation of soil and the economy of manures have been fully and properly attended to. Of course no one denies this, but a great many attach secondary importance to it because their soils are very rich and fertilizers so abundant. There is no need of economy. They raise good crops enough. That may be true, but the fact is you are here to deal with principles and to establish true methods. The particular thing that I would insist upon is, that for the sake of his profession, if for no other reasons, the horticulturist should furnish an example of absolute thoroughness in the manipulation of soils and economy of manures. I need not enlarge on the importance of this. Thinking and practical men know very well that a large majority of all crop failures, both of farm and garden, are really due to imperfect conditions of soil. This, properly prepared, will almost always counteract adverse influences of season, climate, wet, drought, insects, diseases, etc., and reward faithful labor. He who seeks to exemplify the perfection of his art will surely not permit slovenliness of

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any sort on his premises, nor the waste of anything that can be converted to the improvement of the soil. A pretty loud protest ought to be made against filth on the premises of the gardener or fruit grower. Its presence is a rebuke to both his intelligence and his industry. Dwellings of men and animals are necessarily productive of decaying and decomposing matter of various sorts, all of which may be of great value if rightly used. Great as this value is, however, its preservation is of less consequence than the prevention of dangers that arise from neglect. Air and water are poisoned by the habitual and customary mismanagement of sinks, privies, vaults, pig-sties, hen-roosts, stables, garbage heaps, and decompositions that exist around homes, the results of which are disease and death. And this, too, when nature stands ready to aid the man of culture in the useful disposition of all these things. Contemplate for a moment the admirable operations ready to be carried on in nature's simple but effective laboratory. Her universal solvent, if I may so term it, is dust, dry dust. With this alone she will seize upon putridity, and all the most offensive and dangerous forms of matter, and with better than the alchemist's skill transform them into the most beautiful and delicious products for the delight of human sense. How wonderful! Yet men, with a stupidity unparalleled, fail to learn from her and refuse to aid her operations. They persist in going directly opposite to her plain guidance, and attempt to carry away in water what the earth is ready to purify and use. Moses had more sense. Read him. Dry earth is a remedy for putrefaction, an absorbent of noxious exhalations. It will heal a wound, arrest suppuration, destroy offensive odors, capture and kill deadly spores and sperms, and turn the enemies of health and life into sweet luxuries. Yet, with most persistent idiocy, men will dig vaults deep in the ground to treasure up and shut away from its best antidote the accumulations of death to be wafted on the air we breathe and conveyed in the water we drink on deadly missions, for which a beneficent Providence is slandered.

The teachers of horticulture should be right on this matter, in theory and practice. If they would diffuse the fragrance of roses above the ground, let them first bury the odors of offense beneath it. If they would take from nature's gardens the delicious fruits of Eden, let them turn over to her skillful hand everything that is abhorrent to the delicate senses, and see how she can bring life from death and change vileness to glory. Do this, and by and by, as our magnificent country is filled with multiplying millions, the farmer will also learn the happy lesson, and all the land will be a garden laden with wealth and adorned with beauty.

On motion of Mr. Gilbert, President Johnson was elected a delegate to the State Board of Agriculture.

J. C. Ratliff tendered the gift of Snyder blackberry plants to members on behalf of Mr. Andrews, residing in the vicinity. The thanks of the Society were returned to Mr. Andrews.

The venerable Mr. Ohaver took leave of the Society, expressing kindest feelings for each member.

J. C. Ratliff presented the

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REPORT OF THE COMMITTEE ON FRUIT.

To the Indiana Horticultural Society:

Your committee to examine fruits on exhibition, report a very creditable display, when we consider the general failure of fruit throughout the State. We find on the tables a collection of twenty-threes varieties by Dr. Furnas, all correctly labeled; A. C. Harvey, of Lafayette, six varieties of apples and two of crabs; Daniel Bulla, of Wayne county, seven varieties of apples, of large size. Mrs. Wallace, of Indianapolis, as usual, made a fine display of fruit; her Vicar pears were very large and fine; her collection embraced ten varieties of apples, one of crabs and three of pears.

Your committee would make special mention of a large Japan quince, raised in Georgia, and exhibited by N. Ohmer, of Dayton, Ohio. It was of very large size, being six inches in length and four inches in diameter. Also, to an apple, exhibited by Dr. Furnas, the peculiarity of which was its elongation, instead of the cavity at the stem. D. E. Hoffman exhibited a seedling apple from O. B. Galusha, of Illinois, of very fine appearance and good flavor.

Your committee also find on the tables a boll of cotton, fully matured, raised by Mrs. Wallace, of Indianapolis. Also, a lot of genuine Jersey sweet potatoes, sent from Richmond, Wayne county, by Edward Bordon.

All of which is respectfully submitted.

JOSEPH C. RATLIFF,
DANIEL COX,
L. B. CUSTER.

By request, Mr. Ohmer gave his experience

ON STRAWBERRY CULTURE.

Strawberries require a good, rich, clay mold, elevated, well underdrained; a soil that will hold water for weeks and months will not grow anything. Plow the same as for corn or potatoes; not so deep as to turn up the yellow clay. Harrow smooth, mark out on a straight line, and plant in rows three feet apart. This is for field culture, not for garden. Set the plants from fifteen to twenty inches apart. They need thorough cultivating; keep the weeds down—you can not grow weeds and strawberries at once. I mulch in the fall or early winter, a very slight covering; I use wheat straw that is free from seeds of weeds; an inch of straw over a plant is enough. It is not the freezing, it is the thawing, that injures the plants. I do not remove the straw in the spring; they grow through the straw. Covering with straw makes bright colored berries. Plant in the spring, about the first of May; never plant them when the frost is in the ground. Varieties which you want to hasten may be planted in the fall. For garden culture plant in rows about two feet apart,

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in good, well-prepared ground; cultivate by hand, cut off the runners and let them grow in stools, and cultivate in hills. I have seen them grow thus in hills so that a half bushel measure would hardly cover them. I have by this mode of culture raised on three acres, five hundred and forty-eight (548) bushels of strawberries in one season.

One-half is to grow nice berries, the other half is to pick and market them nicely. They should never be pulled off, leaving the stem on the vine, but pinched off with the thumb nail. I employ boys and girls, but prefer girls; they do not wrestle and play so much, or eat the largest berries, as boys do—their mouths are smaller and they do not eat the largest berries, as the boys do. I have large and small put together, do not separate them. Two or three berries should be picked in the hand and then put into the basket. When I see a picker have half a gallon of berries in her apron, I send that one home. I do not pay my pickers until the end of the season; I give checks for every day's work, and pay the money at the end of the season. On the last day I generally treat them to cake and cider in the shade of the trees. (The President remarked that they needed the "blue ribbon" at Mr. Ohmer's.) My beds last two years. It is better to plant new beds, especially in my soil, where I have so much white clover. I do no cultivating after the mulching, until the crop is off. My main sort is Wilson.

RASPBERRIES.

I plant in rows six feet apart, three feet in the row. Too much cultivating makes them tender. I mow down the weeds. The red varieties will send up suckers; I hoe them out as weeds. Propagate the black raspberries from tips; clip them two and a half feet from the ground, but cut the laterals back to a foot. As a rule, the best berries grow on the laterals. Will the top blow over? No, not unless it is too high. I do not bother with wires.

Mr. Ohmer spent a few moments in answering questions suggested by the members, and took his seat, apologizing for his rambling, hasty lecture.

The business of the convention being now completed, and the time having arrived to close, on motion adjourned *sine die.*

The following very interesting letter from ex-President Nelson should have been read, but was overlooked by the Secretary:

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FT. WAYNE, IND., December 15, 1877.

To the President of the Indiana Horticultural Society, in session at Purdue University:

DEAR SIR: The opening day of your annual session being the day appointed for the State House Commissioners to commence examining the plans offered by architects for the new State House, it will be quite impossible for me to be with you at that time as requested.

I think your plan of holding meetings at different points in the State a good one, and I am exceedingly well pleased that you have selected Purdue University for this winter's meeting. It should be regarded as the special duty of that institution to encourage the horticultural as well as the agricultural interests of the State, and be a sort of nursing-mother to all associations of the kind, and that occasional visits like the present can not fail to be mutually beneficial. During my early connection with the university as trustee we had much to discourage us; but we have now good reason to hope, I trust, that the high expectation of the friends of the college will be crowned with success.

Horticulture as a science has a wide range, and sweeps in vast interests that increase the growth, progress, general intelligence and advancement of society. It has been well said that the connections of horticulture, or, rather, of the vegetable kingdom, with *science* are such as to improve the human mind, and thus improve society. If we were to search for a subject of science which admitted of the widest range and the greatest variety, we shall find it in vegetation. There is an obvious and sufficient reason for such a fact. Vegetation is the support of all life, whether of men, animals or insects. It must, therefore, pervade the whole earth, and be capable of infinite variety.

The forms and quantities of mathematics can only be reasoned upon by men; chemical affinities can only be understood and used by men; metals can only be employed by men; but every insect must have *its* plant to feed upon; every species of cattle must have *their* grass to browse, and man must eat bread from the grain of the field. All nature lives and breathes on the bounties of vegetation; hence it is so wide in extent and so various in kind. When science comes to search for materials in this world of manifold nature, it finds an exhaustless source of instruction, amusement and delight.

In conclusion, allow me to return you my thanks for your kind invitation to respond to President White's address of welcome. It would afford me pleasure to do so, was it compatible with other more binding duties—a pleasure greatly enhanced by the fact that I aided in a small degree in starting both institutions, and have seen them rise in a short time from a very feeble beginning to positions of usefulness and promise. Especially have I watched the onward strides of horticultural pursuits, under the auspices of this association, spreading broadcast such pomological knowledge as has placed Indiana high on the list among the fruit growing States of the Union, and adding immensely to her material wealth, intelligence and prosperity.

Very truly,

I. D. G. NELSON.

Upon the adjournment of the Society, the State Board of Horticulture held a meeting.

Sylvester Johnson, W. H. Ragan, Daniel Cox and Dr. Allen

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Furnas were appointed to arrange a premium list for the next annual meeting.

BILLS ALLOWED.

To the Secretary, balance on account of salary	$96 60
To Mrs. Helen V. Austin, Assistant Secretary	12 00
To D. E. Hoffman, expenses to Illinois Hort. Society	23 80
To Sylvester Johnson, services at State Fair	5 00
To Daniel Cox, services at State Fair	5 00

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APPENDIX.

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THE STAR FRUIT LIST.

Notwithstanding the Fruit List has not been revised for two years, it has been suggested by prominent members of the Society that it should be republished. The fact of its not having been changed for so long, is quite satisfactory evidence that it is comparatively correct. Under this endorsement, and through the suggestions above referred to, I herewith republish the list.

SECRETARY.

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REVISED TABLE OF FRUITS

RECOMMENDED BY THE

INDIANA HORTICULTURAL SOCIETY,

AT THE

ANNUAL MEETING AT TERRE HAUTE,

DECEMBER, 1875.

EXPLANATIONS.

N., Northern Indiana; C., Central Indiana; S., Southern Indiana. In the season column, S. stands for Summer; A. for Autumn; W. for Winter; E. for Early; L. for Late. In the N., C. and S. column, three dots (...) denote that the variety is unknown, or not fully tested; a dash (—) that it is known, but not approved; a star (*) that it is generally approved; two stars (**) much approved, or popular; a dash and star (—*) that it does well in some localities only. H. for Hardy; P. for Productive; T. for Tender; U. for Unproductive.

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Revised Table of Fruits, Recommended

Number.	NAME OF FRUIT.	Dist. North.	Dist. Center.	Dist. South.	Hardiness and Productiveness. North.		Hardiness and Productiveness. Center.		Hardiness and Productiveness. South.		Trees.	Shoots.
	APPLES.											
1	American Golden Russets...	☆	—	☆	T	U	T	U	T	P	Vigorous, upright.....	Erect, dark.....
2	American Sum'r Pearmain	☆	☆	☆	T	U	H	P	H	P	Slow, large.....	Slender .....
3	Astrachan Red.....	☆☆	☆☆	☆	H	P	H	P	H	P	Vigorous, upright.....	Reddish brown
4	Autumn Seek-no-further...	...	☆	...	.....	.....	H	P	.....	.....	Large, spreading.....	Slender .....
5	Autumn Sweet Swaar.....	☆	...	...	H	U	.....	.....	.....	.....	Spreading	Vigorous.....
6	Bailey's Sweet	☆	...	...	H	U	.....	.....	.....	.....	Vigorous	Dark.....
7	Baldwin	☆☆	☆☆	☆	T	P	T	P	T	P	Robust, spreading...	Dark brown.....
8	Belleflower, Yellow.....	☆	☆	☆	H	U	H	U	H	U	Spreading	Yellowish.....
9	Belmont	☆	☆	—	H	P	T	P	H	P	Vigorous, spreading	Light olive.....
10	Benoni	—	☆	☆☆	H	U	H	P	H	P	Small, upright.....	Slender, brown
11	Ben Davis.....	☆☆	☆☆	☆☆	H	P	H	P	H	P	Upright, vigorous.....	Reddish brown
12	Broadwell.....	☆	☆	☆	H	P	H	P	H	U	Vigorous, spreading	Light yellow...
13	Buckingham	...	☆	☆	.....	.....	H	P	H	U	Vigorous, upright.....	Slender, d'k r'd
14	Carolina Red June.....	—	☆	☆	H	P	H	P	H	P	Vigorous, upright.....	Slender 'dark...
15	Campfield.....	...	☆	☆	.....	.....	H	P	H	P	Spreading	Slender .....
16	Cooper	☆	...	...	H	P	.....	.....	.....	.....	Spreading	Red'ish, sl'nd'r
17	Canada Reinette.....	☆	...	...	H	P	.....	.....	.....	.....	Vigorous, spreading	.....
18	Clayton	...	☆☆	...	.....	.....	H	P	.....	.....	Vigorous, upright.....	Yellowish.....
19	Duchess of Oldenburg.....	☆☆	...	...	H	P	.....	.....	.....	.....	Medium, round-he'd	Stout, brown...
20	Early Harvest.....	☆	☆☆	☆☆	H	U	H	P	H	P	Spreading	Pale olive.....
21	Early Pennock.....	☆	☆	...	H	U	H	P	H	P	Upright	Erect, dark.....
22	Early Jo.....	☆	—	☆	H	P	H	U	H	U	Vigorous, spreading..	Dark.....
23	English Golden Russet.....	☆☆	☆	☆	H	P	H	P	H	P	Vigorous, spreading..	Stout, dark.....
24	Evening Party.....	☆	...	...	H	P	.....	.....	.....	.....	Upright	Reddish gray...
25	Fallawater	☆☆	☆☆	☆	H	P	T	P	H	P	Vigorous, spreading..	Stout, dark.....
26	Fall Orange.....	☆	...	...	H	P	.....	.....	.....	.....	Spreading	Red.....
27	Fall Pippin.....	☆	☆	*	H	U	H	U	H	U	Vigorous, spreading..	Stout, dark.....
28	Fall Wine.....	—	☆☆	☆☆	H	P	H	P	H	P	Medium, spreading..	Slender .....
29	Fameuse	☆	☆	—	H	P	H	P	H	U	Vigorous	Red.....
30	Fulton	...	☆	—	.....	.....	H	P	H	P	Large, vigorous..	.....
31	Gilpin	...	☆	☆☆	H	P	H	P	H	P	Vigorous, spreading..	Stout, dark.....
32	Golden Sweet.....	☆☆	☆☆	*☆	H	P	H	P	H	P	Vigorous, ro'd-head..	Stout, dark.....
33	Gravenstein.....	☆	☆	—	T	P	T	P	H	P	Vigorous, spreading..	Vigorous.....
34	Hagloe	...	☆	—	.....	.....	H	P	H	P	Vigorous, ro'd-head..	Stout, blunt.....
35	Hoops.....	☆	☆☆	☆	H	P	H	P	H	P	Vigorous, upright.....	Slender .....
36	Hightop Sweeting.....	☆	☆	—	H	P	H	P	H	P	Vigorous, upright.....	.....
37	Hubbardston Nonsuch.....	☆	☆	☆	T	P	T	P	H	P	Vigorous	Dark.....
38	Indiana Favorite.....	...	☆☆	...	.....	.....	H	P	.....	.....	Vigorous, spreading..	Dark red.....
39	Jersey Black.....	☆☆	☆☆	☆☆	H	P	H	P	H	P	Small, spreading.....	Slender .....
40	Jarminite	...	☆	...	.....	.....	H	P	.....	.....	Vigorous, spreading..	Slender .....
41	Jonathan	☆	☆	☆☆	H	P	H	P	H	P	Slender, drooping.....	Light b'n shade
42	Keswick Codling.....	☆	☆	—	H	P	H	P	H	P	Vigorous	Dark.....
43	King of Tompkins County..	☆	—	—	H	P	T	P	H	P	Vigorous, spreading..	Stout, dark.....
44	Large Yellow Bough.....	☆	☆	☆	T	U	T	U	H	U	Vigorous, compact...	Light green.....
45	Ladies' Sweet.....	☆	☆	☆☆	H	U	.....	.....	H	P	Thrifty	.....
46	Late Strawberry.....	☆	☆	...	H	P	.....	.....	.....	.....	Upright, thrifty.....	.....
47	London Sweet.....	☆	...	...	H	P	.....	.....	.....	.....	Vigorous, upright.....	.....
48	Lowell	☆☆	...	...	H	P	.....	.....	.....	.....	Vigorous, ro'd-head..	.....
49	Maiden's Blush.....	☆☆	☆☆	☆☆	H	P	H	P	H	P	Vigorous, spreading..	Slender .....
50	McAfee's Nonsuch.....	☆	☆	☆	H	P	H	U	.....	.....	Upright, vigorous.....	.....
51	Melon.....	☆	☆	☆	T	P	H	P	.....	.....	Ro'nd-he'd, spread'g	.....
52	Milam	—	☆	☆☆	H	P	H	P	H	P	Vigorous, ro'd-head..	Reddish .....
53	Mother.....	☆☆	...	...	H	P	.....	.....	.....	.....	Slender	Dark green.....
54	Moore's Sweet.....	☆	☆☆	☆☆	H	P	H	P	H	P	Vigorous, spreading..	Dark olive.....
55	Newtown Pippin.....	☆	☆	—	H	U	H	P	H	P	Large, spreading.....	Stout, reddish..
56	Northern Spy.....	☆☆	☆	☆	H	P	H	P	H	U	Large, upright.....	Reddish .....
57	Peck's Pleasant.....	☆☆	☆	☆	H	P	H	P	H	U	Healthy, spreading..	.....
58	Pennsylvania Vandevere...	☆	—	...	T	P	H	P	.....	.....	Vigorous, spreading..	Slender .....
59	Pickard's Reserve.....	☆	☆	...	H	P	H	P	.....	.....	Upright, vigorous.....	Light yellow...
60	Porter.....	☆	☆	☆	H	P	H	P	H	P	Vigorous, healthy...	Slender .....
61	Pryor's Red.....	—	—	☆	T	P	T	P	H	U	Thrifty, upright.....	Reddish olive..
62	Primate	☆	☆	...	H	P	H	P	.....	.....	Stocky, vigorous.....	Stout, short.....
63	Rambo	☆☆	☆☆	☆☆	T	P	T	P	H	P	Upright, thrifty.....	Dark.....
64	Ramsdell Sweet.....	☆	...	...	H	P	.....	.....	.....	.....	Vigorous, upright.....	Slender,red'ish
65	Rawles' Janet.....	☆	☆☆	☆☆	T	P	H	P	H	P	Thrifty, spreading...	Brownish .....
66	Red Canada.....	☆☆	☆	☆	H	P	.....	.....	H	P	Slender, thrifty.....	Slender .....
67	Rhode Island Greening.....	☆	☆	—	H	P	T	P	H	U	Crooked, spreading..	Stout, dark.....
68	Roman Stem.....	☆	☆	...	H	P	H	P	.....	.....	Moderately vigorous	Slender .....
69	Rome Beauty.....	☆	☆☆	☆☆	H	P	H	P	H	P	Thrifty, round-head	Slender, red.....
70	Red Stripe.....	☆	☆☆	☆	H	P	H	P	H	P	Hardy, spreading.....	Downy.....

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by the Indiana Horticultural Society.

Place of Origin.	Peculiarities of Fruit.						Remarks.	Number.
	Season.	Size.	Shade.	Flavor.	Color.	Quality.		
America	E. W	Med	Conical.	Sub acid	P. Russet	Best	Table and dessert	1
N. Jersey.	L. S	Med	Round	Sub acid	Striped	Best	Slow grower in nursery	2
Russia	S	Large	Flat	Acid	Red. str	Good	Cooking and market	3
Penn	A	Med	Flat	Sub acid	Striped	V. good.	Table and kitchen	4
	A	Large	Flat	V. Sweet	Yellow	Good	Baking and market	5
New York	L. A	Large	Round	Sweet	Striped	Good	Kitchen, table and stock	6
Mass	W	Large	Flat	Sub acid	Striped	Good	Cooking and market	7
N Jersey	E. W	Large	Oblong	Acid	Yellow	Best	Best on poor soil	8
Virginia	E. W	Large	Conical.	Acid	Yellow	Best	Bitter rot in south	9
Mass	E. S	Small	Round	Sub acid	Striped	Best	Dessert, kitchen and market	10
Kentucky	W	Large	Round	Sub acid	Striped	R. poor.	Fine appear.; val. for market	11
Ohio	W	Large	Round	Sweet	Yel. bl'sh	Best	Table and kitchen	12
Virginia	A	Large	Conical.	Sub acid	Striped	Best	Fall Queen of some	13
N. Carol'a	E. S	Small	Oblong	Sub acid	Red	Good	Scabs badly	14
N. Jersey	L. W	Med	Flat	Sweet	Blushed	Poor	Good for cider	15
America	A	Large	Flat	Sub acid	Striped	Best	Table, kitchen and market	16
Europe	W	Large	Flat	Acid	Yellow	V. good.	Table and cooking	17
Indiana	L. W	Large	Conical.	Acid	Striped	Good	Kitchen and market	18
Russia	S	Large	Flat	Acid	Striped	Good	Cooking and market	19
New York	S	Med.	Flat	Acid	Yellow	Best	Table, kitchen and market	20
America	S	Large	Round	Acid	Striped	Poor	Market and kitchen	21
New York	S	Small	Conical.	Sub acid	Mix'd, r'd	Best	Dessert only	22
England	W	Med	Round	Sub acid	Russet	V. good.	Table and kitchen	23
Penn	W	Med	Flat	Acid	Striped	Best	Dessert	24
Penn	E. W	V. large	Conical.	Sweet	Green	Poor	Fine for market	25
Mass.	A	Large	Round	Acid	Blushed	Good		26
America	A	V. large	Round	Acid	Yellow	Best	Dessert, kitchen, m'k't, dry'g	27
America	A	Med	Flat	Sub acid	Red, str	Best	Scabs badly	28
Canada	A	Med	Round	Sub acid	Red, str	V. good.	Dessert, kitchen and market	29
Illinois	E. W	Large	Flat	Acid	Yel, bl'sh	Good	Scabs badly	30
Virginia	L. W	Small	Round	Sweet	Striped	Good	Cider and stock	31
Conn	S	Large	Round	Sweet	Yellow	Good	Baking and market	32
Germany	S	Large	Flat	Sub acid	Striped	V. good.	Table and kitchen	33
N. Jersey	S	Large	Round	Acid	Striped	Good	Kitchen and market	34
Penn	L. W	Med	Flat	Acid	Striped	Good	Market	35
Mass	S	Med	Round	Sweet	Green	Good	Table and kitchen	36
Mass	E. W	Large	Round	Acid	Striped	V. good.	Table and cooking	37
Indiana	W	Med	Flat	Sub acid	Red. str	Good	Table and market	38
N. Jersey	E. W	Med	Round	Sub acid	Dark red	Good	Table, kitchen and market	39
Ohio	L. W	Med	Round	Sub acid	Striped	Good	Table and market	40
New York	W	Med	Oblong	Sub acid	Red, str	Best	Dessert and cooking	41
England	A	Med	Oblong	Acid	Yellow	Good	Cooking	42
New York	W	Large	Round	Acid	Striped	V. good.	Table, kitchen and market	43
America	S	Large	Conical.	Sweet	Yellow	Good	Market and stock	44
New York	W	Large	Round	Sweet	Striped	V. good.	Table and baking	45
New York	A	Med	Conical.	Sub acid	Striped	Best	Dessert especially	46
Ohio	W	Large	Flat	Sweet	Yellow	Good	Very best for baking	47
America	A	Large	Round	Sub acid	Yellow	V. good.	Table, cooking, drying, market	48
N. Jersey.	A	Large	Flat	Acid	Blushed	Good	Cooking and drying	49
Kentucky	W	Large	Glob'lar	Acid	Striped	Good	Market	50
New York	W	Large	Flat	Sub acid	Striped	V. good.	Table and market	51
South	W	Small	Conical	Sub acid	Red, str	Good	Dessert	52
Mass	E. W	Med	Oblong	Sub acid	Red, str	V. good.	Dessert	53
	W	Large	Flat	Sweet	Red	Good	Baking and cider	54
New York	L. W	Med	Round	Acid	Yellow	Best	Dessert	55
New York	W	Large	Conical.	Acid	Striped	Good	Coarse; market	56
R. Island	E. W	Large	Round	Sub acid	Yellow	V. good.	Table, kitchen and market	57
Penn	W	Med	Flat	Acid	Striped	Good	Kitchen; subject to bitter rot	58
Indiana	W	Large	Flat	Acid	Yellow	V. good.	Table and kitchen	59
Mass	A	Large	Oblong	Acid	Yellow	V. good.	Kitchen, table and market	60
Virginia	W	Large	Round	Sub acid	Red, str	V. good.	Affected by change of soil	61
New York	S	Med	Round	Acid	Yellow	Best	Dessert	62
Penn	A	Med	Flat	Sub acid	Striped	V. good.	Table, kitchen and market	63
Conn	A	Large	Oblong	Sweet	Striped	Good	Early bearer; baking, stock	64
Virginia	L. W	Med	Conical.	Sub acid	Striped	V. good.	Dessert, kitchen, market, cider	65
Mass	W	Med	Conical.	Acid	Striped	Best	Table and kitchen	66
R. Island	E. W	Large	Flat	Acid	Green	V. good.	Cooking and dessert	67
N. Jersey	W	Med	Round	Sub acid	Yellow	Good	Table and cooking	68
Ohio	W	Large	Flat	Sub acid	Striped	Good	Market	69
Indiana	S	Med	Conical.	Acid	Striped	Good	Table, kitchen and market	70

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Revised Table of Fruits, Recommended by the

Number.	NAME OF FRUIT.	Dist. North.	Dist. Center.	Dist. South.	Hardiness and Productiveness. North.		Hardiness and Productiveness. Center.		Hardiness and Productiveness. South.		Trees.	Shoots.
	APPLES.											
71	Ragan's Red	...	*	...	.....	.....	H	P	.....	.....	Vigorous	Slender
72	Spitzenburg, Newtown	*	*	—	H	P	H	P	H	P	Vigorous, spreading.	Brownish
73	Spitzenburg, Esopus	*	—	***	H	P	H	U	H	P	Vigorous, upright	Slender
74	Summer Rose	...	*	*	.....	.....	H	P	H	P	Vigorous, spreading.	Stout
75	Smith's Cider	*	***	***	H	P	H	P	H	P	Vigorous, str. limbs	Light olive
76	Summer Queen	*	*	***	H	P	H	P	H	P	Vigorous, spreading.	Slender
77	Swaar	*	*	—	H	P	H	P	H	P	Vigorous, spreading.	Stout, dark
78	Tallman's Sweet	*	*	*	H	P	H	P	H	P	Vigorous, spreading.	Yellowish
79	Trenton Early	***	***	*	H	P	H	P	H	P	Vigorous, spreading.	.....
80	Twenty Ounce	...	*	—	.....	.....	H	U	H	P	Thrifty round head.	Reddish brown
81	Victuals and Drink	*	*	*	H	U	H	U	H	U	Vigorous, spreading.	Slender
82	Wagoner	***	*	*	H	P	H	P	H	P	Thrifty, upright	Stout
83	Westfield Seek-no-further	*	*	*	H	P	H	P	H	U	Thrifty, spreading	.....
84	White Pippin	*	***	***	H	P	H	P	H	P	Vigorous, upright	Very dark
85	Winesap	*	***	***	H	P	H	P	H	P	Vigorous, straggling.	Dark
86	Willow Twig	*	*	*	H	P	H	P	H	P	Vigorous, spreading.	Olive brown
87	William's Favorite	*	—	*	H	P	H	P	H	P	Slow, spreading	.....
	PEARS.											
1	Bartlett	***	***	***	H	P	H	P	H	P	Upright, spread	Yellowish
2	Belle Lucrative	***	***	***	H	P	H	P	H	P	Moderate, upright	Yellowish gray
3	Beurre d'An ou	*	***	***	H	P	H	P	H	P	Pyrimidal	Light green
4	Beurre Diel	***	*	***	H	P	H	P	H	P	Large, irregular	Dark, grayish
5	Beurre Gifford	*	*	*	H	U	H	P	H	P	Straggling	Slender, redish
6	Blood Good	*	*	***	H	P	H	P	H	P	Moderate grower	Reddish brown
7	Doyenne d'Ete	*	*	*	H	P	H	P	H	P	Vigorous, upright	Brownish red
8	Doyenne White	*	*	*	H	P	H	P	H	P	Vigorous, upright	Yellowish gray
9	Early Catherine	*	*	*	H	P	H	P	H	P	Hardy	Slender
10	Flemish Beauty	***	***	***	H	P	H	P	H	P	Vigorous, spreading.	Dark brown
11	Glout Morceau	*	*	*	H	U	H	P	H	P	Vigorous, pyramidal	D'k olive-green
12	Howell	—	*	*	H	P	H	P	.....	.....	Strong	Brown
13	Julienne	—	—	*	H	P	H	P	H	P	Thrifty, upright	Yellowish
14	Madeliene	—	—	*	H	P	H	P	H	P	Vigorous	Greenish
15	Onondaga	—	*	*	H	P	H	P	H	P	Vigorous	Yellow
16	Rostizer	*	*	*	H	P	H	P	.....	.....	Spreading	Olive colored
17	Seckel	***	***	***	H	P	H	P	H	P	Small, round-head	Short, stout
18	Sheldon	*	**	**	H	P	H	P	H	P	Vigorous, erect	Yellowish
19	Doyenne Gray	*	*	*	H	P	H	P	H	P	Vigorous, upright	Grayish brown
20	Doyenne Boussock	*	*	*	H	P	H	P	H	P	Vigorous	Diverging
21	Beuerre Bosc	*	*	**	H	P	H	U	H	P	Vigorous	Brownish olive
22	Buffam	—	**	*	H	P	H	P	H	P	Erect, vigorous	Reddish
23	Tyson	***	*	**	H	P	H	P	H	P	Upright, vigorous	Dark brown
24	Lawrence	*	***	***	H	P	H	P	H	P	Moderate growth	.....
25	Vicar of Winkfield	*	*	***	H	P	H	P	H	P	Straggling	Strong
26	Winter Nellis	*	*	*	H	P	H	P	H	P	Thrifty, straggling	Diverging
	ON DWARF STOCKS.											
1	Louise Bonne d'Jersey	***	***	***	H	P	H	P	H	P	Vigorous, upright	Strong
2	Duchess d'Angoulemme	*	***	***	H	P	H	P	H	P	Upright, strong	Yellowish br'n
3	Belle Lucrative	*	*	***	H	P	H	P	H	P	Moderate, upright	Yellowish gray

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Indiana Horticultural Society.—Continued.

Place of Origin.	Peculiarities of Fruit.						Remarks.	Number.
	Season.	Size.	Shape.	Flavor.	Color.	Quality.		
Indiana	A	Large	Round	Acid	Red	V. good	Table and market	71
L. Island	E. W	Large	Flat	Sub acid	Striped	Best	Sc'by and defect. on old trees	72
New York	E. W	Medium	Conical	Acid	Red	Best	Rots on tree in some localities	73
N. Jersey	E. S	Small	Round	Sub acid	Striped	V. good	Family, table and kitchen	74
Penn	W	Large	Round	Sub acid	Striped	Good	Cooking and market	75
New York	S	Medium	Conical	Acid	Striped	V. good	Kitchen and market	76
New York	W	Large	Round	Sub acid	Yellow	V. good	Table and kitchen	77
R. Island	W	Medium	Round	Sweet	Yellow	Good	Use baking and stock	78
	L. S	Large	Conical	Acid	Pale yel	Good	Dessert and kitchen	79
Conn	A	Large	Conical	Acid	Striped	Good	Market, cooking and drying	80
N. Jersey	A	Large	Conical	Sweet	Green'yel	Best	Table, baking and stock	81
New York	W	Large	Flat	Sub acid	Striped	Good	Market, table and kitchen	82
Conn	W	Medium	Conical	Sub acid	Striped	Good	Table and market	83
	L. W	Large	Round	Acid	Pale yel	V. good	Kitchen, table and market	84
N. Jersey	L. W	Medium	Conical	Acid	R. striped	Good	Market, kitchen and cider	85
Virginia	L. W	Large	Round	Acid	Striped	Good	Market and culinary uses	86
Mass	S	Medium	Round	Sub acid	Striped	Good		87
England	Ag., St.	Large	Obtuse	Sub acid	Yellow	V. good	Table, kitchen and market	1
Belgium	Ag., St.	Medium	Conical	Sweet	Green	Best	Table and kitchen	2
France	St., Oct.	Large	Obtuse	Vinous	Yellow	Best	Table and market	3
France	St., Oct.	Large	Pyrif'm	Sweet	Yellow	V. good	In cold soils, coarse	4
Europe	Jul., Ag	Medium	Turb'te	Vinous	Blushed	V. good	Regular bearer	5
New York	August	Medium	Turb'te	Aromatic	Yellow	Best	Regular bearer	6
Europe	July	Small	Obova'e	Sweet	Yellow	V. good	Dessert, early bearer	7
Europe	St., Oct.	Medium	Obova'e	Sweet	Yellow	Best	Cracks in some localities	8
	August	Small	Pyrif'm	Sweet	Yellow	Good	Slow in bearing	9
Europe	Ag., St.	Large	Obova'e	Sweet	Yellow	Good	Table and market; bears early	10
Europe	De., Ja.	Large	Obtuse	Sweet	Yellow	V. good	Family	11
Conn	Sept	Large	Obova'e	Sub acid	Yellow	Good	Table and market	12
	August	Small	Obova'e	Sweet	Yellow	Good	Dessert and kitchen	13
	July	Medium	Pyrif'm	Sweet	Green	V. good	Dessert	14
Conn	St., Oct.	Large	Pyrif'm	Sub acid	Yellow	V. good	Table, kitchen and market	15
Europe	Ag., St.	Small	Pyrif'm	Sweet	Gr. blush	Good	Dessert	16
Penn	Ag., St.	Small	Obova'e	Rich	Yel. blush	Best	Dessert	17
New York	St., Oct.	Medium	Conical	Vinous	Yellow	Good	Kitchen and market	18
France	Oct	Medium	Obova'e	Delicious	Russet	V. good	Family and market	19
Europe	St., Oct.	Medium	Obova'e	Sweet	Yellow	Best	Family and dessert	20
Belgium	St., Oct.	Large	Pyrif'm	Sweet	Russet	Best	Dessert and market	21
R. Island	Sept	Medium	Obova'e	Sweet	Russet	V. good	Regular bearer	22
Penn	Ag., St.	Medium	Pyra'dl.	Sub acid	Yellow	Good	Tardy bearer	23
L. Island	Nv., Ja.	Medium	Obtuse	Sub acid	Yellow	V. good	The best early winter	24
France	Nv., Ja.	Large	Lg. Py'l	Sub acid	Pale yel	Good	Good for baking and market	25
Belgium	Jan	Medium	Roun'h.	Sweet	Green	V. good	Dessert and market	26
France	St., Oct.	Large	Pyrif'm	Sub acid	Gr. blush	Good	Very productive; market	1
France	Oct	Medium	Oblong	Rich	Yellow	V. good	Dessert and market	2
Belgium	Ag., St.	Medium	Conical	Sweet	Green	Best	Table and kitchen	3

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Revised Table of Fruits, Recommended

Number.	NAMES OF FRUITS.	DIST. N	DIST. C	DIST. S	PECULIARITIES OF TREES. H	P	Tree.	Shoots.	Leaves.	PLACE OF ORIGIN.
	PEACHES.									
1	Columbia	...	...	*	T	...	Slow grower	Dark purple	Renif'm	Georgia
2	Crawford's Early	*	*	**	T	U	Vigorous	Yellowish	Globose	N. Jersey
3	Crawford's Late	*	**	*	T	U	Vigorous	Reddish yellow	Globose	N. Jersey
4	Druid Hill	...	*	*	H	P	Very vigorous	Large	Globose	Maryland
5	George the Fourth	*	*	*	H	U	Vigorous	Diverging	Globose	New York
6	Grosse Mignonne	*	*	**	...	...			Globose	France
7	Hale's Early	*	*	*	H	P	Vigorous	Large	Globose	Ohio
8	Heath Cling	**	**	**	H	P	Vigorous, spr'd'g	Stout	Renif'm	Maryland
9	Late Heath Free	*	*	**	H	P	Vigorous		Renif'm	N. England
10	LaGrange	...	*	*	H	P			Renif'm	N. Jersey
11	Morris' White	*	*	*	H	P	Vigorous		Renif'm	Penna
12	Morris' Red Rareripe	...	*	—	H	P	Vigorous	Stout	Globose	Penna
13	Oldmixon Freestone	*	**	**	H	P	Vigorous	Stout	Globose	America
14	Oldmixon Cling	**	**	**	H	P	Vigorous	Upright	Globose	Europe
15	October Yellow	...	*	*	H	P	Flower large		Renif'm	France
16	Smock Free	*	**	**	H	P			Renif'm	N. Jersey
17	Stump the World	*	*	**	H	P	Spreading	Stout	Globose	
18	Troth's Early Red	*	*	**	H	P	Flower small		Globose	America
19	President	*	*	*	H	P	Vigorous	Upright	Globose	L. Island
20	Fleenor	...	*	**	H	P	Vig'rous, uprig't	Slender		Indiana
	CHERRIES.									
1	Early May	**	**	**	H	P	Spreading	Slender		Belgium
2	English Morello	—	*	—	H	P				
	QUINCE.									
1	Orange	*	*	*	T	P	Vigorous		Oval	
	GRAPES.									
1	Concord	**	**	**	H	P	Vigorous		Downy	Mass
2	Ives Seedling	...	*	*	H	P	Vigorous			Ohio
3	Hartford Prolific	*	*	*	H	P	Vigorous		Downy	Conn
4	Delaware	—	*	*	H	P	Not fruitful		Mild' ws	Ohio
5	Clinton	—	*	*	H	P	Vigorous		Smooth.	New York
6	Salem	...	*	*	T	P				
	CURRANTS.									
1	Cherry	—	*	*	H	P	Strong, erect	Stocky	Large	Italy
2	Red Dutch	**	**	...	H	P	Thrifty	Upright		
3	La Versaillaise	...	*	...	H	P	Thrifty	Upright		France
4	White Dutch	*	*	...	H	P	Vigorous	Erect		
5	White Grape	...	*	*	H	P	Vigorous, spr'd'g	Strong	Medium	
	GOOSEBERRIES.									
1	Houghton's Seedling	*	**	*	H	P	Very spreading	Slender	Green	Mass
2	Mountain Seedling	...	**	...	H	P	Large, spreading	Long	Green	Tenn
	RASPERRIES.									
1	Doolittle's Blackcap	**	**	**	H	P	Strong	Curved, thorny		New York
2	Philadelphia	—	*	—	H	P	Strong	Erect	Thick	Penna
3	Davidson's Thornless	—	*	—	...	...	Spreading	Slender		
4	Canada Blackcap	...	*	...	H	P	Spreading	Curved		
5	Mammoth Cluster	...	**	**	H	P				
6	Miller's Daily	...	*	...	...	...				
7	Tuner	...	*	...	...	...				
	BLACKBERRIES.									
1	Kittatinny	...	*	...	H	P	Thrifty		Ovate	N. Jersey
2	Lawton	...	*	...	T	P	Strong, vigorous	Stout		New York
	STRAWBERRIES.									
1	Wilson's Albany	**	**	**	H	P	Moderate			New York
2	Green Prolific	**	*	*	H	P	Vigorous		L'gt g'n	N. Jersey

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by the Indiana Horticultural Society.—Continued.

PECULARITIES OF FRUIT.							REMARKS.	Number.
Class.	Season.	Size.	Shape.	Flavor.	Color.	Quality		
Free	Sept	Large	Ro'nd'h	S. acid	Brown	Best	Bright yellow flesh	1
Free	August.	V. large	Ro'nd'h	Rich	Bl'sh yel.	V. good.	Flesh yellow, melting, rich	2
Free	L. Sept.	Large	Ro'nd'h	Vinous	Bl'sh yel.	V. good.	Flesh yellow, market	3
Free	Sept	V. large	Ro'nd'h	Rich	Red	V. good.	Flesh greenish white	4
Free	L. Aug.	Large	Round	Rich	Red	Best	Stone small, flesh pale	5
Free	August.	Large	Ro'nd'h	Vinous	Red	V. good.	Flesh yellowish, white at stone	6
Free	July	Medium	Round	S. acid	Red	Good	Flesh white, rots on trees	7
Cling	October	V. large	Oblong.	Rich	White	Best	Flesh white, keeps late	8
Free	Sept	V. large	Oblong.	S. acid	White	Good	Flesh white, red at stone	9
Free	L. Sept.	Large	Oblong.	Sweet	White	Best	Flesh pale, fine for canning	10
Free	Sept	Large	Oval	Sweet	White	Best	Flesh white to the stone	11
Free	August.	Large	Ro'nd'h	Sweet	Blushed	V. good.	Flesh white, red at stone	12
Free	Sept	Large	R'd ho'l	Sweet	Yel. red	Best	Flesh white, quite red at stone	13
Cling	Sept	Large	R'd ho'l	Rich	Yel. bl'd	Best	Flesh white, best canning	14
Cling	October	Medi 'm	R'd ho'l	Sweet	Yellow	Good	Yellow flesh, for preserving	15
Free	L. Sept.	Large	Oval	Rich	Yellow	Good	Flesh yellow, market	16
Free	Sept	Large	Oblong.	S. acid	Wh'e bl'd	V. good.	Flesh white, market	17
Free	August.	Medi 'm	Round	S. acid	Red	V. good.	Early market	18
Free	Sept	Large	Round	Rich	Red ch'k.	Best	White, deep red at stone	19
Cling	October	Large	Oblong.	Rich	White	Best	Market and canning	20
STALK.							RECOMMENDATION.	
Long	May	Medi 'm	Round	Acid	Red	Good	Market	1
	Sep. Oct	Large	Ro'nd'h		Golden	Best	Market and family	1
BUNCH.							REMARKS.	
Compact	Sept	Large	Glob'lar	Sweet	Black	Good	Market and family	1
Compact	Sept	Medi 'm	Round	Sweet	Black	Good	Market, family and wine	2
Shouldr 'd	Sept	Large	Glob'lar	Sweet	Black	Good	Early market	3
Small	Sept	Small	Round	Sweet	Light red.	Best	Dessert and family	4
Medium	Sep. Oct	Small	Round	Acid	Black	Good	Keeps late	5
								6
Short	Early	V. large	Round	Acid	Deep red.	Good	Market and family use	1
Long	Medi 'm	Medi 'm	Round	Acid	Dark red.	V. good.	Kitchen and market	2
Long	Late	Large	Round	Acid	Dark red.	Good	Market and family	3
Short	Early	Medi 'm	Round	S. acid	Yel. white	V. good.	Table and market	4
Long	Medi 'm	Large	Round	S. acid	Yel. white	Best	Dessert, market and kitchen	5
	Early	Small	Oval	Sweet	Brown	Good	Market and kitchen	1
	Late	Large	Oblong.	Sweet	Red	V. good.	Table and market	2
PROPAGTS								
Tips	Early	Large	Oval	Sweet	Black	Best	Dessert, kitchen and market	1
Suckers	Late	Large	Round	Sweet	Red	Good	Dessert and market	2
Tips					Black	Good	Recommended for trial	4
Tips	Late	Large	Oval	Sweet	Black	V. good.	Recommended for trial	5
								6
								7
Suckers	Early	Large	Conical.	Sweet	Black	V. good.	Table and kitchen	1
Suckers	Late	Large	Round	S. acid	Black	V. good.	Table, kitchen and market	2
CLASS.								
Stam 'na'e	Medi 'm	Large	Conical.	Acid	Crimson	Good	Table, market and kitchen	1
Pistilate	Medi 'm	Large	Round	Acid	Scarlet	Good	Market and family	2

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PREMIUM LIST.

The following cash premiums will be awarded at the annual meeting of the Society, to be held in Danville, December 17, 18 and 19, 1878, under the general rules herewith appended:

RULES—Competition free to members who may pay their fees prior to or at the time of making entries. Members' wives may compete without fee.

All fruits must be carefully and correctly labeled, each collection or entry to be accompanied by a statement of facts connected with the culture, soil, time and manner of gathering, mode of keeping, whether in cellar or above ground apartment, if kept in bins, barrels or upon open shelves, age of trees, and such other information as may be of value to planters and fruit growers, that may suggest itself to the mind of the exhibitor, which, together with the report of the Awarding Committee, will be carefully preserved and published in the annual transactions of the Society, for the promotion of horticulture within our State.

Four specimens of each variety will be required, and no collection can compete for more than one premium, except as part of the display or sweepstakes premium, in its respective class.

Best 15 varieties of Apples	$10 00
Best 10 varieties of Apples	8 00
Best 5 varieties of Apples	5 00
Best 1 variety of Apples	3 00
Best plate of Baldwins	1 00
Best plate of Ben Davis	1 00
Best plate of Clayton	1 00
Best plate of Rome Beauty	1 00
Best plate of Yellow Belleflower	1 00
Best plate of White Pippin	1 00
Best display of Apples	10 00
Best display of Pears	8 00
Best 5 varieties of Pears	5 00
Best 3 varieties of Pears	3 00
Best 1 variety of Pears	1 00
Best display of fruits of all kinds	10 00
Best Cally in bloom	1 00
Best display of plants	2 00
Best display of jellies and preserved fruits	2 00
Second best display of jellies and preserved fruits	1 00

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REPORT OF THE LIBRARIAN.

To the Indiana Horticultural Society:

Although nominally performing the duties of Librarian for years, this may very properly be regarded as my first annual report. This is due to the fact that we have, until recently, neither had a library nor a place to keep one. For the latter, we are even now wholly indebted to the State Board of Agriculture, through Secretary Heron and State Librarian Conner, while Mr. Heron has kindly contributed eighty-five (85) volumes to our collection of books. These are of a miscellaneous character, but altogether acceptable and appropriate. To the Department of Agriculture at Washington, through its chief clerk, E. A. Cannon, we are indebted for fourteen (14) volumes, mainly of agricultural reports of the government; to W. H. Ragan for six (6) volumes of horticultural publications, with full set of reports of the Society extending back to 1867; to Charles Downing for one copy of his revised edition of "Fruits and Fruit Trees of America;" and to exchanges and kindred societies for reports, embracing transactions of most of the State Horticultural Societies, among which are especially prominent almost a complete set, from 1832 to date, of the Massachusetts State Society, and reports from Canada, Nova Scotia and other foreign countries.

It is impossible at this time for me to furnish a complete catalogue of the library, but will add that our room is embellished, in addition to the library proper, by the framed medal and diplomas awarded to the Society by the Centennial Commission, a diploma of the State Board of Agriculture, awarded under special resolution of the Board, the report of the awarding committee on fruit at the Centennial, and the certificate of incorporation, under the hand and seal of J. E. Neff, Secretary of State of the State of Indiana, besides appropriate cases and furniture adapted to the use of such a room. The room is in the second story of the State Building, corner of Tennessee and Market streets, Indianapolis, admission through the rooms of the State Board of Agriculture, where horticulturists and others interested are respectfully invited to call, and where contributions to the library will be acceptable at any time.

W. H. RAGAN,
Secretary and Librarian.

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PROCEEDINGS OF LOCAL SOCIETIES,

EMBRACING REPORTS FROM THE

SOCIETY OF RICHMOND

AND

PLAINFIELD SOCIETY.

RICHMOND HORTICULTURAL SOCIETY.

From the monthly reports of the Richmond Horticultural Society I glean the following: The Society is in a flourishing condition, never having had a more prosperous year than the last. Meetings have been held at the Association Rooms in Richmond, at John Hatfield's, at Hawkins Springs, at the greenhouse of L. B. Case, and at the residence of Hon. William Baxter. A number of very valuable papers and essays have been read, reports made and discussions indulged in by the Society, which I deem eminently worthy of preservation in permanent form. I therefore furnish herewith such as appear to be of most value, when viewed from the standpoint of utility, in connection with the upbuilding of the horticultural interests of our State.

(Sec'y Ind. Hort. Society.)

ENTOMOLOGY.

During the year Dr. R. S. Mitchell, from the Committee on Entomology, made reports as follows:

MR. PRESIDENT: Your Executive Committee has again assigned to me, one of your special committee, a very pleasant and interesting subject, one that I love to investigate, and I thank them for the privilege. It is very pleasant to me to investigate my friends, so that I may know them sufficiently well to treat them as they deserve. I am also willing to investigate my enemies, so that I may know them and shun them, or be able to protect myself from their attacks.

The subject that I am expected to investigate and bring before you in parcels at each regular meeting does not, just now, offer much capital to work upon; but entomology is not the dry, uninteresting subject many think it to be.

If we do not see our insect friends and our insect enemies busily at work around us every day, we can think of them in their regular orders and families, quietly resting in their winter quarters.

There are three periods in the life of an insect, marked by corresponding changes, in the form, powers and habits.

In the first period in the life of an insect it is called a larva, a word signifying a mask, because the future form is masked or concealed. After casting off their

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skins we find them in the second period of life. They are then called pupa, or chrysalis. At the end of the second period the chrysalis again shed their skins and come forth fully grown.

The habits of many insects are to pass into the ground to undergo their transformations. Others remain above ground, and are protected by special arrangements against wet and cold. Most of those that remain above ground during winter are protected by a warm silken cocoon. I have here a silken cocoon in which the chrysalis of the *Atticus cecropia* is protected through all the storms of winter. This fine moth will come out of this silken house in June. It does not live long after, or do much mischief.

I here exhibit the chrysalis of a large black caterpillar, taken from a young walnut tree the third week in July. The caterpillar was put in a glass jar with five inches of earth and some fresh walnut leaves. In four days it had disappeared, and at the bottom of the jar of earth the transformation was completed. It did not require a silken cocoon for protection.

In these forms we can think of the great insect world in the second period of their lives, many of them ready to come forth after a few warm days, full of life and activity, and ready to eat and destroy, according to their nature. Destructive insects have their appointed tasks, and are limited in the performance of them.

R. S. MITCHELL.

MR. PRESIDENT: A report on any insect, or insects, that will be likely to give the horticulturist the most trouble the coming season, would, this early in the season, be mere speculation. The cabbage worm that has given the horticulturist so much trouble for two years, will, in many places, again make its appearance this season. It has but one insert enemy in this country that is known—a very small two winged fly, called Tachina.

In Europe four insect enemies have been described, and many parasites, that are at work to check its increase. How much these enemies have increased in the twelve years that it has been overrunning the United States, we have no authority to give. We are not able to say whether this insect is to remain with us, and be held in check by its natural enemies, or whether its life is limited to a certain number of years in different localities, like our late and very annoying span-worm was, is yet to be tried. One thing I know now to a certainty about them. I have not been able to find one chrysalis containing the future butterfly, this winter, but can not think their time is out. I have not seen one apple containing the larva of the codling moth. I have not seen one nest of the cankerworm, and for two years I have not seen one nest of the tent-making caterpillars. The plum curculio and currant worms are transformed in the ground, and like many others of our insect enemies, we do not know much about what they will do until we see them at work.

We had on exhibition at our last meeting a specimen of very lively little grasshopper, said to be at that time very numerous in the vicinity of Richmond. It was not known to which species of our injurious grasshoppers they belonged. It will be safe to suppose the lot will have to be duplicated if horticulturists are damaged from that source this season. We will venture to say in this report that the grasshopper that came down in this vicinity last fall in such large numbers belonged to the species that had inhabited the Eastern and Middle States as long as man has. Reports say they often become very numerous and destructive to fruits and grass, and that they migrate from place to place in great numbers when short of food, but never take the long flights their western relatives do with their longer and more powerful wings.

R. S. MITCHELL.

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MR. PRESIDENT: In my last report two of our injurious beetles, with their lives and habits, were made the subject. For this report I have selected some of our useful bugs, so that all who have any use for them may know them and protect them, and my aim will be to try to make plain to you the difference between the good bug and the bad beetle, and to try to convince you that it is not our best policy to destroy by wholesale our useful bugs with our injurious beetles.

Beetles are insects that belong to an order that have jaws and teeth, and take their food by biting it from the plant. They have thick shell-like covers, for their wings; their young, or larvæ, are called grubs.

Bugs are insects that belong to another order, and take their food through their beaks by suction. They have four wings, without covers. They are generally called plant bugs or house bugs; their young or larvæ are called worms or slugs.

Many of our beetles are great feeders, and, as all horticulturists know, many of them are very troublesome and destructive to our garden and field crops. But among these despised bugs we have industrious, hard working friends, whose full value has not yet been well understood by the horticulturist, or there would not be such a determined wholesale destruction of them.

I am able to have on exhibition two of these useful bugs. The short, broad-shouldered, ochre-colored one is called the spined soldier bug, (arma spinosa—Dallas,) and is now (but not yet well known) the bitter enemy of the Colorado potato beetle, and one of our best friends, and can not be too well known; its odor is not as pleasant as the rose, but this is endurable when we know all its good uses. It is often mistaken for the stinking squash bug (coreus tristes—DeGeer), but should be known and protected with the other specimen on exhibition, the rapacious soldier bug. This one was taken at work among the Colorado grubs, sucking their juices for a living. These, and many others, should be protected, and their lives and value considered when destroying our injurious enemies with poisonous compounds.

I know of no place where the cabbage worm is doing any damage. The currant worm has done its complete work in some gardens. The Colorado grubs are doing some damage in many fields, but not so bad as in other years, their insect enemies, with man's help, are every year lessening their influence.

R. S. MITCHELL.

FOOD FOR MAN.

Dr. Taylor read an article on "Foods for Man," which showed that he had given his subject much study. It embraced many valuable suggestions, which many would do well to give heed to. It is as follows:

Worthy President, Ladies and Gentlemen:

It would certainly look more modest and becoming in me to remain a silent listener to the words of wisdom that are ever ready to flow from your older members, rather than assume the position of lecturer, and attempt to teach you anything in relation to the science of horticulture, who are already so amply qualified to be my instructors. But each one of us have different trains of thought, different mental states that mark our identity, and which distinguishes each one of us from every other person, and it would seem right and proper for each one to bring out this peculiar and distinguishing mental feature for the benefit of all others. It is by this means that progress is made in the world of thought; by this means that society advances through the centuries toward a higher plane and a wider experience. Then, if I can not teach you anything in relation to the science of horticulture, I may be able to lay before you some of the leading ideas that have been impressed upon my own

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mental being, and that are continually seeking to find expression. Let me direct your attention, then, to the subject of foods, and their bearing upon the civilization and progress of mankind.

We are all apt to think upon foods as something merely to satisfy the demands of appetite, and that when that is done foods have accomplished all they are capable of, and we may rightfully think no more about them. But this is too narrow a view to take of the subject to satisfy the developments of science.

A recent scientist has said "that could man live on air and water alone, such notions as master and servant, prince and subject, friend and foe, virtue and vice, right and wrong, would have no existence, and political communities, social and family life, human intercourse, commerce, trade and industry, art and science, depend entirely on the fact that man possesses a stomach and is subject to a law of nature that compels him daily to take a certain amount of food." Now if this be true, then the quantity and quality of our food is most intimately connected with our whole existence, and determines really our status in the world, our habits of life, our mental and moral standing; in fact, makes us just what we are. I know this is a startling proposition, but let us look at it with the light of science, and see if its truthfulness can not be demonstrated.

And now we will take, first, the commonest view of the subject with which you, as farmers, are already familiar. You all know that, by careful feeding, we can make wonderful changes in the character and worth of our domestic animals. Take the hog as an example. All our improved breeds of swine can be traced back to the wild hog, an animal as different from an improved Berkshire or Essex hog as a savage man is different from a thoroughly cultured Christian gentleman. And all this great change is produced by proper feeding and careful selection of the animals chosen for continuing the species. Again, take the horse, and by proper feeding and right training we can make him fleet of foot and suitable for the saddle, or we can give him a heavy body and strong limbs suitable for heavy draughts. And, while training and proper surroundings have something to do with these well known changes effected in our domestic animals, yet experience has proved that food is the great factor in its production.

Then, if food is capable of accomplishing such wonderful changes in the nature and condition of our domestic animals, does it not follow that it effects changes equally as great in man? Man possesses a physical organism differing, it is true, in many of its arrangements from the highest type of animal existence, and yet, when we come to critically analyze it we find it made up of the same proximate principles that exist in these highest forms of animal life. The muscles have the same chemical composition in the one case as the other, and the muscular movements are brought about in the same way in both instances, by the contracting and shortening of the ultimate fibres of which the muscle is made up. And the same is true of all the other tissues and organs in the physical system; no difference can be discovered in their chemical properties in man and the higher animals. Then, if all the great and wonderful changes we have noticed can be produced in animals by different systems of feeding and different articles of food, is it not rational to suppose that a different system of feeding will produce like results in man? But, you may say that man is possessed of a mind, and that his whole physical nature is under the control of it. But what do we know of the manifestations of mind in man, only as the result of physical changes going on in the brain? Physiological experiments have satisfactorily proved that every mental effort made by man is the result of the oxidation of a portion of the brain substance. And what is the brain substance but the digested and assimilated food of which we have partaken? But

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you may ask how is it known that mental effort is the result of changes effected in the brain substance. Recent scientists have promulgated a theory something like this: That the brain consists of two sorts of material, a white and a gray substance; and that the gray matter is made up of innumerable little cells, or corpuscles, massed together; and the white matter consists of myriads of connecting threads that ramify and unite and cross each other at innumerable points, and as they wear into and through this gray matter they become actuated or made alive with the current influence called the nerve force. This nerve force seems to be derived from the chemical union that takes place between the oxygen of the blood in the little capillary vessels that everywhere surround the cells of the gray matter and the elements of the cells themselves. This chemical union is the last act of the cell that closes its existence, and its elements are now carried away in the current of the blood to be cast out of the system as dead matter. The little white threads that run everywhere through the cells of the gray matter are merely the carriers of the nerve force that originates in the cells themselves.

Now, you may say this is a very pretty theory, but how do we know it to be true? In the first place, there can be no feeling and no mental action of any kind without a proper supply of blood be sent to the brain, and this blood must contain both the oxygen and the elements to replace the cells to be oxydized. And the richer the blood is in this brain food, and the more abundant the quantity, the more intense and vivid the mental processes become.

Again, the brain substance is made up of different material from the other parts of the body, and after severe mental labor this decomposed material is found in the excretions of the body. And, again, it is found that the capacity for great mental effort depends, in a measure, upon the size and weight of the brain substance. The brain of the great naturalist, Cuvier, weighed 64½ ounces; Dr. Abercrombie's weighed 63 ounces; Daniel Webster's weighed 53½ ounces, whilst in the lowest type of idiots the weight runs down to 8 or 9 ounces.

Then these facts seem to be very fairly established that mental manifestations are brought about in the brain, and that these mental acts decompose a portion of the brain substance which must be regularly renewed; and, also, that all brain substance is derived entirely from the food which must contain the special elements of which it is composed.

But man is not made up entirely of brain, but he has muscles that bring about the various movements of the body, and bones which hold him in the erect position, and various external and internal organs that perform different functions; and all these movements and this functional activity bring about the destruction of the part that acts, which requires the process of renewal to be constantly going on throughout the organism; and all this renewal must be secured from the daily food. This, then, seems to be a law of life, that every act, whether physical or mental, brings about the destruction of the part that acts. If it be a mental action, the part of the brain producing the mental effort is destroyed; and, if the brain is to be kept up to the original standard, new material must be supplied from the food to make good the loss. The same is true in relation to muscular effort. Every muscular movement destroys the portion of the muscle that contracts, and new material must be supplied by the food to make up the loss, or the muscle will be left weakened.

And now there is another law of life, in connection with this waste and renewal, that is worthy of attention. Every muscular movement made by the physical organism that secures the destruction of a portion of the muscular substance, the muscle that contracts is made better and stronger by the effort, provided the material for renewal be properly and sufficiently supplied. The same may be said in

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relation to mental effort. Every thought that evolves from the mind, every mental effort of any kind, improves and strengthens the mental power, provided the proper material be supplied to rebuild the part destroyed in the effort. It is the activity of every part of the organism that secures its growth and development, provided always the proper material for new growth be sufficiently and continuously supplied. But the different parts of the body are composed of different substances, and each part must be supplied with its own particular elements in sufficient quantity, or it will be unable to continue to perform its special office. For example: If an individual fails to take a sufficient amount of the albuminous material of which his muscles are composed to make up the waste brought about by the various movements of the body, his muscles will become weakened, and his ability to produce muscular movements will be correspondingly lessened. If he fails to take a sufficient amount of the earthy substance, of which the great bulk of his bones is composed, a portion of the bony structure will become softened, and he will be left crooked and deformed. If he fails to take sufficient carbonaceous food to keep up the heat of the body, his body will cool down unless he supplies the heat from without. If he fails to take a sufficient amount of the fatty phosphates to supply the waste of the brain substance, that results from mental effort, the ability to continue this effort will be weakened and lowered. Thus you see that food has to be taken to answer very different purposes in the economy of life, and that it must be of various kinds and of different compositions to fulfill all these purposes. If the individual man is to become strong and healthy, and well developed in body and mind, he must partake of sufficient strong and wholesome food, composed of all the elements needed to build up a well developed muscular and mental organism. And if this is necessary for individuals, is it not much more important for nations and peoples? As was said by the distinguished German, Otto Ule, "The selection of articles of food is not only important for the personal well being of the individual, but that it is a weighty and world-stirring question for countries and nations in its bearings on the history of civilization. If nations are to flourish and become strong and mighty they, no less than individuals, need wholesome and strong food." If civilization and refinement can only grow and develop amongst a people that uses a refined and pure and varied dietary, then it can not be possible that this civilization and refinement will continue to advance, unless this kind of food be supplied for all the people.

And now the question arises, how are we to determine what kinds of foods are strong and healthy, and that will fulfill all the purposes for which we need food. This would seem a difficult question to decide; but, when we come to analyze the different kinds of food material, we find it made up like the human organism, of different proximate principles, and that some of these proximate principles exist largely in certain classes of foods, and in other classes but sparingly, and in others, again, not at all. This fact has enabled us to range the whole of the food material into different groups, according as it contributes to one or another part of the organism. The albuminous material that constitutes the nutritive elements of the blood, and that enters into the composition of the muscles, ligaments, sinews—all that part of the organism concerns in its movements are called albuminoids. All this group contains nitrogen, and exists most largely in meat, milk, eggs, the cereal grains, and but sparingly in most vegetables and fruits. Then we have another class of foods that supports the temperature of the body, and which contains a large amount of carbon, but does not contain nitrogen, as do the albuminoids, and consists mostly of the fatty, starchy saccharine principles of our foods, and exists in most of the groups. Then there is still another group of foods called

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nutritive salts, which are of an inorganic nature, although found in most organic substances, and which are necessary to the formation of the bones.

Now, all these various forms of food material are essential to the perfection of the human organism, for with them the organism is built up; and life is an unceasing process of waste and repair, and the food must make good the loss the organism suffers every instant of time, or the body must retrograde and become enfeebled.

And now comes up the important fact that no single article of food contains all these essential elements in proper proportions to satisfy the demands of a perfect human organism. The milk of some of the domestic animals comes nearer to it than anything else in all the domain of nature, but even that will not satisfy the wants of a dull life in the full exercise of all its powers. Then we learn from this that the selection of no one class of foods is sufficient to satisfy the demands of the healthy human organism, and the more varied and extensive the bill of fare the better, provided it be judiciously selected and properly prepared. And in this selection we must be guided, in a measure, by the activity of the different parts of the organism. For instance, if we are using muscular system in excess, then we must partake more largely of that class of albuminous foods that will repair the muscular waste, as meat, bread, eggs, milk, and some of the stronger vegetables, as cabbage, potatoes and okra. But if we are taxing the brain inordinately, then our foods should consist largely of articles containing special brain food, as fish, oysters, eggs, cracked wheat, oat meal, and the finer forms of vegetables and fruits. And thus our foods should be varied to suit the exigencies of our condition at all times, and to do this requires the exercise of intelligence and forethought in order to keep the organism in a perfectly healthy and normal condition. And how often we see the farmer exercising this forethought in respect to his working animals, and yet never giving a single thought in that direction in relation to his family, but he would resent it as an insult if told he was manifesting more care toward his horses than toward his sons. Again, our foods should be varied to suit the season of the year, or good health can not be preserved, and while fruits in some form should constitute a portion of each meal in the entire year, during the summer months plenty of the FRESH ACID FRUITS will frequently ward off all malarial disease, and while very grateful to the palate will preserve the system in good health and vigor.

Then there is another matter that is scarcely ever thought of by the people, and yet it exercises a wonderful influence over our whole existence, and that is the *quality* of the food we eat. It is not only necessary that we partake of a sufficient amount of albuminoids, heat producers and nutritive salts, but the quality of these tells upon our whole being and places us up or down in the scale of civilization and refinement. The "Heathen Chinee" gets all the prox principles his system requires in his food of rats and puppies, and bird's nests and rice, but he gets a low groveling nature too, and hence, in all the progress of the ages, the Chinese have made no advance. The roaming savage of the forest gets all the prox principles his system requires from the wild animals he subsists on, but he gets along with this the savage nature of these animals, and therefore civilization and refinement are impossible for him until his food is changed. And to the failure of the Christian organizations sent to civilize and Christianize the Indian races to recognize this food question, may be traced the want of success that has so far attended that great and noble national enterprise. So long as the Indian lives upon the food of the savage, so long will he continue to be a savage, in spite of all moral influences that may be brought to bear upon him. You must humanize his physical system by proper foods before you can refine and Christianize his moral nature. Then let the Government

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instead of furnishing these races with firearms and deadly weapons, establish extensive fruit and vegetable gardens in their midst, in order that these great civilizers and refiners of man's nature may be abundantly supplied to all these people. Then may the Christian Associations succeed in their mission and the Indian question be settled for all time.

And now the point I wish to make is this: That civilization and refinement, and even long life, can not be supported and maintained upon a diet made up of the flesh of animals and the coarser vegetables; that the growth and development of the higher faculties of a man's nature is the outgrowth of a dietary made up largely of the finer and purer forms of vegetables and fruits; that while animal food will help to sustain and develop the muscular power in man, its tendency is also to feed and increase the animal passions and appetites of his nature. And there is no doubt that the too great use of animal food produces disease and tends to shorten human life. Our domestic animals being kept mostly upon artificial food, and that frequently of the poorest kind, and also being subjected to conditions contrary to their natures, they become diseased and their flesh is thereby rendered unwholesome and unfit for use. Many of the most loathesome diseases to which man is liable can be traced directly to the flesh of the animals on which he fed. The tapeworm and the trichinæ would never find a lodgment in man if he did not partake of animal food; and the seeds of that terrible scourge of the human race, scrofula, in most instances are transferred from the flesh of the hog to find a congenial lodging place in the glandular systems of our children. And when we take into consideration that all mental action, and in fact all life action of any kind, is the result of the oxidation of the various elements of the prox principles that make up the brain and other portions of the body; and that the kind of force resulting from this oxidation depends on the character of the various principles from which these elements are taken, the importance of the character of our food becomes a matter of absorbing interest. For if the food we eat is coarse, or impure, or improperly prepared for the processes of digestion and assimilation, it can not be possible that the action resulting from that kind of food will be characterized by purity or refinement.

I know we are but too apt to conclude that if we have good digestive powers it matters but little what we eat, for we think our stomachs can somehow transform the coarsest kind of food into whatever the system requires. But this is a most fatal mistake, and is certainly not warranted by the teachings of science; for although during the process of digestion some of the foods are changed in form as starch is converted into sugar and sugar into fat, yet there is no evidence of there being any power in the organism that can convert impure or coarse food into anything purer or finer, and that the same character adheres to it throughout its transitions through the organism. Now these are most interesting facts, and should impress upon us the importance of always selecting the purest and finest forms of food within our reach, no matter from what source they may come. If we choose to partake of animal food, let the selection be made from the finest and best kept animals within our reach. If of vegetables and fruits, let these also be selected with great care, and let nothing be used but what is perfectly pure and sound and healthy.

Now let us see if we can not trace the PROGRESS OF THE CIVILIZATION OF NATIONS in the foods of their people. If we go back to the very first trace of man upon the globe, we find he left no evidence of any advance in civilization; but all the relics that have been found go to prove that in the earliest period man was the lowest kind of a savage; and from the tools and appliances left behind him his food must have been most meagre and precarious, and made up almost entirely of the flesh of wild animals.

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But it is needless to go so far back to prove that man's elevation in the social scale is dependent upon his food, as we have evidence enough within the confines of our own country and continent. Wherever you find a man living on a scanty diet, and that made up of but few articles, there you will find him a rude and savage being, and the more this scanty diet is made up of the flesh of wild animals, the more cruel and savage we find man to be. Look at the aborigines of our continent when first discovered. In the northern portions of the country, where they lived entirely by hunting and fishing, they were as savage and untamable as the animals on which they fed. In the more southern portions of the country, where their dietary was more extensive and varied, and made up in part of vegetables and fruits, there man exhibits an advanced state of civilization and refinement. In Mexico and Central America, where they had extensive fruit and vegetable gardens, they had erected large cities and paid considerable attention to the fine arts, as painting and sculpture, and many of these nations were really a refined and cultivated people. And to show that this difference is not traceable to climatic or natural causes, let us look at the present races in these same localities. In the New England States there is no people in the world, perhaps, that have so varied and extensive a dietary, and where can you find a people so far advanced in all the various phases of civilization and all that tends to the true elevation of man as these same NEW ENGLAND YANKEES. Everything in the shape of vegetables and fruits is there brought to the highest state of perfection the ingenuity and enterprise of man can secure, and the dietary of the people varies almost with each day in the year. And along with this we see the cultivation of the arts and sciences flourishing as nowhere else in the world.

And now, in contrast with all this, let us examine the dietary and its consesequences in the southern portions of this country, where the aborigines exhibited the most varied bill of fare and the most complete evidence of an advanced state of civilization. To witness this contrast in its greatest degree one needs but travel on the M., K. and T. Railroad through the State of Kansas, where the Yankee element prevails, and he will see the tables literally filled with all the luxuries of the season; but on arriving in the State of Texas nothing will greet his palate but the inevitable black coffee, fried hog and corn dodger, for every meal in the day, and every day in the year. It is true in the larger cities and towns of Texas the people have a more extensive and better bill of fare, but the great mass of the people of the country live about as I have indicated, and the result of their food may be seen in their low grade of civilization and want of refinement. And what is found in Texas may be seen in all the extreme Southern States. And all this difference in the habits and life of the people of the South is usually charged to the hot and enervating climate, and the belief prevails that the high culture and advanced civilization and refinement found in the Northern States can never be transplanted to the SUNNY SOUTH. I do not believe this position tenable or in accordance with the truth. Give the present inhabitants of the South, and their descendants for a series of years, an extensive and varied dietary, such as the people of the North enjoy, and I believe there would be found the finest exhibitions of civilization and refinement the world has ever yet seen. And in no way can the barbarism and outlawry that now disgrace and distract the people of the Southern States be so effectually removed as by an extended and varied class of foods for all the people. You can not gather grapes from thorns, or figs from thistles, nor can you secure the results of an extended and full dietary from a poor and inefficient one. If brains and muscles and bones and sinews must be manufactured in the laboratory of the stomach and organism of man, then the stomach and organism must be supplied with all the elements of which these different parts are composed. If the emotional

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faculties and all the finer and nobler principles in a man can only grow and develop in a system properly supplied with suitable and varied foods, then we can not expect to find these traits of character exhibited when this class of food is wanting.

But, you may ask, is an extended and pure and varied dietary all that is necessary to secure the highest form of development and refinement the race is capable of reaching? No, certainly not; it is only making this highest development and refinement possible. Let me illustrate this by citing you to the business of farming. If a farmer has a poor, exhausted piece of land, he can not raise a remunerative crop of anything without first supplying what is needed to the soil in the shape of plant food. No manner or amount of cultivation will enable him to produce something from nothing; and although the crop will get some nourishment from the rains and the atmosphere, yet no remunerative crop can be secured without the lacking elements be directly supplied to the soil. Then, with proper and thorough cultivation, the farmer may be rewarded for all his toil. And the same principle applies to the cultivation of man: the food must supply all the elements his physical nature requires, in pure forms and sufficient quantity, and then, with proper cultivation and training of all his faculties and powers, he may be brought to the highest state of civilization and refinement his nature is capable of reaching. But if the food he partakes of fails to furnish all the needed elements of his body in pure and proper form, then all the cultivation and training that can be bestowed upon him will be in vain, and such a man will be but a gilded savage. Then to secure the highest attainment the race is capable of reaching, the dietary of the people must be extended and purified and perfected as far as possible in every direction, and along with this the most thorough cultivation and training of all the faculties and powers of his nature they are capable of receiving.

And now, farmers and horticulturists, do all these facts bring no lesson to you? You are the feeders of the world. You can retard the progress of civilization and refinement, and all the beautiful attributes of human nature, by furnishing a poor and scanty dietary for the people, or you can hasten the good time coming by extending and multiplying this dietary in every available direction. If he is a benefactor of the race who makes two blades of grass grow where only one grew before, how much greater is the achievement of him who increases and multiplies the varieties of vegetables and fruits, and all things else suitable for the food of man. Here is a field for experiment more enticing and inviting to a cultivated mind and a pure heart than any field of speculation the world can present, for success in this field is adding to the happiness and purity and refinement of mankind. This field, farmers and horticulturists, is yours to enter, and then to labor and to wait.

There is no labor so noble as that which adds to the true manhood and womanhood of the race. Man is worth more than all the brute creation; and, while you are striving to improve your domestic animals, do not forget that man has not yet reached the millennial state. His progress in civilization and refinement is greatly dependent upon you. And, while laboring to beautify and build up your properties and your homes, bear in mind that the grandest and noblest ornaments that can adorn these homes are the pure and refined and cultivated specimens of manhood and womanhood that grow up beneath their shelter.

And now, ladies, let me say that this food question and home life has special reference to you as well as to your husbands and fathers and brothers. Almost everything that gives a charm and pleasure to home life must pass through your plastic fingers, and receive from you its finishing touches, before it is in condition to make glad the happy home. And especially is this true in relation to foods, for

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the husband may furnish his larder with every edible substance known, and unless his wife is qualified to prepare and shape an inviting and tempting repast from the materials provided suitable to be converted into brain and muscle, and bone and sinew, the ample provision of the husband will be in vain. And no question is demanding more earnest and immediate attention of the women of this nation than that of the proper preparation of foods for the people. The whole question needs investigation and rearrangement upon true and correct scientific principles. A matter of such vast importance to the welfare of the people should not be left in that complete chaotic state that exists all over this country to-day. And who so well situated to investigate this question, and improve and perfect a system of cooking that will commend itself to all the people, as the ladies of horticultural and agricultural societies? You can do in your associated capacity what you never could accomplish isolated and alone. And there are two great errors that have crept into American society that are doing incalculable mischief, and that need your earliest attention and thought. The one is that almost any kind of food will do for the every-day family meal, provided there is no expectation of company. The other is the special and extravagant preparation for company when expected.

In relation to the first of these errors, the principle should be impressed upon American women that it is the every day family meals that build up and develop the physique and character of the individual and family, and therefore should be specially provided for and made full and complete in every particular.

The second error to which I allude is scarcely less mischievous in its bearings upon the social principle in this country. To so great a degree is this carried, that many ladies exhaust almost their whole vital force in the preparation of a single repast for a few guests, when the same amount of proper food could have been prepared with very little labor, and which would have been much more acceptable to the stomach. The result of this is that the social principle has become almost obliterated in this country. One lady hardly thinks of visiting her neighbor without sending her word in advance, that all these elaborate dishes may be prepared for her reception; and the social visit of a number of ladies at one place costs too much in labor and money to be very frequently indulged in. Hence all this contact of mind with mind, that adds so many charms to the social life, and tends so much to the true elevation of man and woman, is becoming almost a thing of the past.

And now, ladies of the Horticultural Society, here is a field of labor for you, to correct this great social wrong that has crept into woman's circle, and that is poisoning all the charms of the home life. In your meetings together talk over these questions, and resolve not to yield to the behests of fashion unless fashion will bring forward something that will help you toward a higher and a purer life. Study simplicity and healthfulness in the preparation of all food, and see that you furnish everything the human organism requires, and by so doing you will have contributed your parts toward the true elevation and refinement of mankind.

REPORT ON ORNITHOLOGY.

LADIES AND GENTLEMEN: The subject assigned me for an essay, to be read at this meeting, being of a scientific character, and one which I have not given a careful study or investigation, I feel warranted in digressing from the progamme so far as to make a selection of the subject of a "report" I am expected to make to-day the subject of an essay—in other words combining a report and essay together—therefore, what I shall say on this occasion will be an introduction to the reports I am appointed as a special committee to make on ornithology. I approach the subject with hesitation, because I know I shall not be able to give the informa-

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tion expected of me by this association; but as one with you all, desiring useful knowledge relative to the science and art of horticulture, and its kindred branches, I am willing to contribute my feeble offering.

Ornithology is defined to be that part of zoology which treats of the structure, habits and classification of birds. And I might add in this connection that no branch of science connected with industrial pursuits is of more importance and as little understood as this. The reason is, there are but few standard works on ornithology in this country, and it is but recently the subject has received any special attention in our schools and colleges.

Wherever man has explored the earth birds have been found; in the high latitudes of the North, under the equator, between the tropics, on the highest mountains and in the valleys, on the prairie and on the hillside, in the forest and on the ocean, the sea, the lake and the river, every locality has its birds and its peculiar varieties. The distribution, however, is very unequal; greater numbers and greater varieties are found in the torrid than in the temperate or frigid zone. Some portions of country abound with birds only while they furnish them with a supply of food; this being exhausted, they seek other localities; hence the migrations or journeyings of "birds of passage."

In this country, many kinds of birds, found at its early settlement, are strangers to us now. The forests, which furnished them with homes, food and shelter, have been cut away. The murderous shotgun has sadly decimated their numbers, and the few remaining of some kinds will, judging of the future by the past, like the aborigines, soon be known only in history.

One of the most striking and interesting peculiarities of birds is their plumage. To lovers of the beautiful, nature here presents her objects of admiration in great variety, and with the most exquisite and delicate touches of her pencil. As an evidence of its appreciation, we find people of almost every nation, whether savage or civilized, from time immemorial, have adorned their persons with the feathers of birds of brilliant plumage. The toilet of our fashionable ladies, even in this latter day, is not complete without an ostrich plumes, the wing or feathers of some small bird with which to adorn their head gear of bonnet, hat, cap or nondescript, as the case may be. Chanticleer is often compelled to contribute his variegated streamers for the above purpose.

From the time the Psalmist wrote of the singing birds among the branches of the cedars of Lebanon to the present, the human mind has been delighted with the tuneful melody of those little songsters. Who does not hail with pleasure the return of spring accompanied by the sweet sounds of nature's own minstrels? Or, put the question in another form, who would enjoy the spring time so well if the songs of birds were not heard on every hand "from early morn till dewy eve?" Do not these "companions of our race," if from no other consideration, deserve protection for cheering our pathway throughout the journey of life? Not content with the delightful harmony of birds in their free, natural condition, many people, in order to enjoy a more intimate companionship, confine them in cages in their dwellings, their captivity ending with their death. Thousands of birds annually perish in this country in this way, from the effects of imprisonment and unnatural and unwholesome food, in order to gratify a desire to improve on nature, or to be in the style and have just as fine a bird and as "splendid" a singer as Mrs. such a one has. Could not some of our prison reformers give us a lecture on the improvement of birds?

To the farmer and gardener birds are of incalculable advantage. In confirmation of this statement I will make a few quotations, and from such authorities as can not be called in question. Theodore Jasper, in his "Birds of North America,"

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says: "Birds eat more in proportion to their size than any other animals belonging to the class of vertebrata. Not a few of them eat as long as they are awake, and many of those that live on insects consume daily two or three times their own weight." The same author further says: "The utility of birds to mankind is beyond question. They are our guardians against insects, whose ravages would, were it not for birds, lay waste the entire globe."

Bewick, in his "British Birds," says: "It has been observed that a single pair of sparrows, during the time they are feeding their young, will destroy about 4,000 caterpillars weekly; they likewise feed their young with butterflies and other winged insects, which, if not destroyed in this manner, produce hundreds of caterpillars."

Dr. Stanley, the late Bishop of Norwich, states that "Sparrows feed their young thirty-six times in an hour, which, calculating at the rate of fourteen hours a day, in the long days of spring and summer, gives 3,500 times per week," which corroborates the authority of another author, who calculated the number of caterpillars thus destroyed to be 3,400. Lastly, I will quote from I. D. G. Nelson, of Fort Wayne, Indiana, than whom a better posted man in the theory and practice of agriculture and horticulture is not to be found in the State. He says: "The encouragement of birds is undoubtedly one of the best remedies for the orchardist. The amount of insects destroyed by even the smallest birds, upon examination of their stomachs, proves enormous, and therefore they should be encouraged by every possible means."

It is estimated that not less than one million dollars worth of agricultural products of this State are annually destroyed by insects alone. Their ravages in some localities are becoming truly alarming. New insects, destructive to vegetation, are too frequently making their appearance, while others are multiplying at a rapid rate—a rate about in proportion to the decrease of birds. What means have we to rid ourselves of these troublesome pests? What can we do to save our crops from their depredations? I know of none so effectual, none so sure to succeed, as to encourage and protect our birds.

The food, habits and characteristics of particular kinds of our insectivorous birds will be the subject of reports which I expect to make to the society from time to time, as I can gather reliable information from observation and from trustworthy sources.

JOSEPH C. RATLIFF.

MEETING AT HON. WILLIAM BAXTER'S.

The regular monthly meeting—and the last out-door meeting of the season—of the Richmond Horticultural Association was held on the grounds of William Baxter. Owing to a misleading notice in one of the papers quite a number of the members understood that the meeting was an afternoon affair, and consequently they did not arrive until after the dinner was over. The attendance was, however, very good, especially in the afternoon, and the display of fruits and vegetables very creditable to the season; while in a social way the gathering was an exceedingly pleasant one, the host and hostess sparing no pains to enhance the enjoyment of the guests.

BUSINESS—THE STATE HORTICULTURAL SOCIETY.

About 2 o'clock President J. M. Bulla called the meeting to order for business; J. D. Hampton, Secretary.

By invitation, Sylvester Johnson, of Irvington, President of the State Horticultural Society, gave the association an account of the exhibition of fruit by the State Association at the recent State Fair at Indianapolis. The pomological display was one of the best ever made in the State, and the work had been accomplished at a very slight cost.

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Mr. Joseph C. Ratliff also spoke of the exhibition at the State Fair, agreeing with Mr. Johnson as to the character of the display, and citing as an indication of its success the fact that there were 1,100 plates of fruit, a large portion of it very fine; he saw one apple which measured fifteen inches in circumference—five inches in diameter.

APPLES AND ORCHARDS.

The subject of apples and orchards being in order, Mr. Daniel Bulla made some remarks relative to the bitter rot in apples, which this season seemed to be specially destructive to the Smith's Cider, the White Pearmain and the White Pippin. A rot spot in an apple as large as a nickel made it unfit for cider, the fungus growth, or whatever it was, being bitter as quinine. His experience taught him that it was best to avoid early picking of apples—they should be allowed to remain pretty late on the trees.

President J. M. Bulla gave some of the results of his experience in the endeavor to secure a crop of apples each year. To bring about this end he had resorted to a system of liberal pruning, and he had found it to work well. Through it he had managed to secure a pretty fair crop each year. The much-abused Pennock apple had this year done the best of any variety. Like Daniel Bulla, the speaker had also been troubled with the bitter rot, especially in his Pearmains.

Sylvester Johnson criticised Daniel Bulla's practice of letting apples remain on the trees until late, to which criticism it was responded that if they were picked early they were liable to shrivel.

J. M. Bulla said his experience was that apples ripened best and became more perfect if left until late on the trees; but for long keeping, apples ought to be gathered quite early.

Joseph C. Ratliff was of opinion that apples, in order to keep well, should be fully matured; unripe fruit would not keep well, and apples matured best on trees.

Daniel Bulla said when fruit of any variety began to fall freely it was a sure sign that it ought to be gathered.

THE NEXT MEETING.

Joseph Ratliff presented a communication from L. B. Case, inviting the association to hold a meeting at his greenhouses, suggesting October 27 as the date, and offering the same premiums for fruits, flowers, plants, and vegetables as he gave at the last meeting in the same place. The invitation was accepted with the modification that, instead of holding a special meeting October 27, the association would hold its next regular meeting (November 10) at Mr. Case's greenhouses instead of at the association rooms.

ON BIRDS.

Mr. Elisha Parker, who was to have read an essay on birds, being absent, Mr. Sylvester Johnson made a few remarks on that topic. He was a great friend of the birds, for the reason that the birds were the great friends of the horticulturist; and he specially desired to speak a good word for the English sparrow, which bird had been severely attacked by some members of this association, on the ground that it was so pugnacious that it drove off the other feathered friends of the farmer. He was aware that some of the ornithologists held this view, but others equally distinguished held the contrary opinion. He had a talk lately with Professor Jourdan, of Butler University, and that gentleman was strong in the opinion that the English sparrow's pugnacious qualities had been greatly magnified, and that that bird was in reality one of the farmer's best friends. Mr. Johnson read an extract from a report of Professor Snow, of Kansas, upon the advisability of introducing the English sparrow into that State. Professor Snow denies that this bird drives off

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the robins, blue birds, the chirping sparrow, or martin; but the blue bird, on the other hand, would drive away the English sparrow. The English sparrow did not fight any bird except its own species—and this fighting was only between the males during pairing season. Professor Snow's report strongly urged the introduction of these birds into Kansas. Mr. Johnson agreed with Professor Snow. From his own experience he knew the worth of the English sparrow; he had that very morning seen a flock of them clear one of his apple trees of caterpillars in less time than it had taken him to tell it.

Joseph Ratliff said he had considered the English sparrow of no advantage whatever. He had the testimony of Dr. Levett, of Indianapolis, that previous to the introduction of the English sparrow in that city martins, robins and red-heads were quite numerous, while now they had become extremely scarce. He knew that the English sparrows were great devourers of insects, but as they kept almost exclusively to the towns and cities, they were of little or no benefit to agriculturists or horticulturists.

Mr. Ratliff wished to call special attention to the wholesale destruction of the quail, which would begin on November first. The quail was one of the farmers' best friends, and every effort should be made to prevent its destruction. Something had been gained by the passage of the present law, which permitted them to be hunted only two months of the year; but he hoped the time would ere long come when it would be unlawful to hunt them at all. The quails were great protectors of crops, but even if they were not it was for the interest of farmers that shooting them should be made illegal, if for no other purpose than to keep hunters from trespassing on their property.

Walter Stevens, of Centreville, also spoke a good word for the quail. It was a common mistake to suppose that the quail could not be domesticated. He had done so with success; he had a quail that was so tame that it made its nest on the window sill, laid its eggs and sat on them together with the egg of a Cochin hen. The quail's eggs did not hatch, as the bird had no mate, but the Cochin egg did, and it was a most amusing sight to see that quail endeavoring to hover its one big chicken after it had grown to considerable size.

David Thomas said it was a well-known fact that the quail was a great destroyer of the chinch bug, and in this statement was supported by several other speakers.

NEW MEMBERS.

The following named persons were proposed and elected members of the Association: Mr. and Mrs. William Baxter, Mr. David Thomas, Mrs. Sarah A. Thomas, Misses Emma and Clara Thomas, Miss Hannah Johnson and W. M. Hathaway.

Prefacing the reading with an explanation that the essay had been prepared for a previous meeting, Mrs. Mattie C. Birdsall then read the following essay on

THE GROWTH AND FORCE OF CHARACTER.

As nature once again bursts into beauty, and new life seems to be opening all around us, developing itself in the bright green grass, the tiny bud, the opening flower, are we not reminded of the youthful mind just opening to the grandeur and responsibility of life—for is there not a beautiful simile presented to our notice? The gardens need our watchful, nursing care; yet how much more does the young mind need careful training and watchful care to fortify the youth against the temptations which assail him all along the pathway of life.

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And while the body is growing let not the soul be neglected, out of which must spring the product of life—character—which is the soul morally viewed, or the habitual disposition of man in reference to conduct. Character is really a quality of the soul, and is the root out of which must spring all reputation that is worth the name. We see and hear much praise given to deeds of daring, both in the march and upon the field of battle, in our civil war—not only in our civil war, but history furnishes us with many examples of heroism and deeds of daring. But I dare claim for humanity a greater degree of true heroism even than facing the cannon's mouth.

No man or woman has ever led a true and noble life but has had struggles with their own souls fiercer than any Gettysburg. If they have fought bravely and truly, they will come out crowned heroes, those that the world takes no note of; yet if they fail, the world is agape, and charity is not.

We see young men and maidens struggling for a livelihood, gaining, perchance, money, and what is of greater worth, true manhood and womanhood, for in learning to labor we but add a jewel to our crown, whose brilliancy depends upon ourselves. Honor to those that endure to the end, and a brave hero is he who conquers even one low propensity, and with armor firmly clapsed, marches over his fallen foe.

No man or woman ever arrived suddenly at the summit of wisdom. It is a rugged path that leads up the mountain of life. We are slipping constantly—many things tempt us aside. Are we scoffed at for these failures, or is there a kind hand stretched forth to help us regain our places in the ranks and march on? Such an act surely ennobles the character of one, while it saves and helps build up the other.

The faculty, or I may say the habit, of observing character is by no means a general one; yet there are persons who have made this a study, judging most particularly the expressions of countenance as different ideas are conveyed by the speaker. And just here I will make remark No. 1. If good humor, frankness, intelligence or any other amiable quality is indicated, the beauty of the face is heightened even more than by faultlessness of feature. It most certainly is true that certain expressions of feature give us the impression of certain peculiarities of mind and disposition. The celebrated physiognomist, Campanella, who made observations on human faces, and was wonderfully expert in imitating such as were in any way remarkable, held that it was impossible for one assuming a particular expression to avoid the mental disposition connected therewith. When desirous of becoming acquainted with a person's feelings he imitated his expression, his carriage and all other peculiarities of face and body as nearly as possible, and then carefully observed what turn of mind he seemed to acquire by the change. Thus, he declared, he could enter into any person's thoughts as effectually as if he were converted into the man himself.

Others profess to be able to judge persons by their penmanship, claiming that their particular traits are visible in the curves, angles and peculiar style of writing. I do not think, however, that they are able to distinguish the color of eyes, hair or the shape of the nose.

But we wish now to look at character in its true and best light—not entertaining the absurd idea of the Scythians, who, hearing of the fame of Alexander the Great, were so impressed with his greatness they thought he must be a giant, and were astonished to find him rather under than above their own size. The characters of individuals make up the character of a nation. How many examples of self-made men we find on the pages of history—those who have been instrumental in the world's civilization and Christianization. The great English philosopher, Sir Isaac Newton, was the son of a yeoman. The distinguished astronomer Adams, the discover of Neptune, was the son of a small farmer, on a very bleak spot of land; yet

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however sterile the soil may be, that does not hinder the mind from growing. Sir Humphrey Davy was a country apothecary's apprentice. Speaking of himself, he once said: "What I am I have made myself. I say this without vanity, and in pure simplicity of heart."

We need not read English history to find examples of self-made men. We are well acquainted with Washington, Dr. Franklin, Adams, Clay, Webster, Lincoln, Greeley, Wilson, and last, but not least, our present President, Rutherford B. Hayes. Not alone to the men belongs all the praise. There are also heroines whose power and influence have been of the most elevating character, some of the best examples being Elizabeth Fry, Joan of Arc, Harriet Beecher Stowe, Gail Hamilton and Georgie Eliot. In all their cases individual application and resolution was the price paid for distinction. Excellence of any kind is always placed beyond the reach of indolence. It does not take qualities at all extraordinary to insure success. They may for the most part be summed up in these two—Common Sense and Perseverance. Studious attention and industry always mark the true worker. The greatest men are not those who "despise the day of small things," but those who improve them the most carefully. Some one, who was no doubt successful, said that "whatever was worth doing at all was worth doing well."

One great difference in men is the intelligence of their observation. "The wise man's eyes are in his head," says Solomon, "but the fool walketh in darkness." Knowledge is but the accumulation of small facts. With perseverance, the very odds and ends of time may be worked up into results of much value. One hour every day taken from frivolous pursuits would, if profitably employed, enable a person of ordinary capacity to go far toward mastering a science; it would make an ignorant man well informed in a few years. Socrates said: "Let him that would move the world, move first himself," or, as the old rhyme runs—

> "If every one would see to his own reformation,
> How very easily you might reform a nation."

One of the best tests of a man's practical wisdom is how a man uses money, makes it, earns it, and spends it. While money ought by no means to be the chief motive to exertion, neither is it a trifling matter, it being to a large extent the means of physical comfort and social well-being. Indeed, some of the finest qualities of ourselves are closely related to the right use of money—such as generosity, justice, honesty, self-sacrifice, as well as economy, while they have their counterparts of avarice, fraud, injustice and selfishness.

Habits formed in youth are, as we all know, much more lasting than those of later life; and here it may be observed how much the character may be strengthened by the cultivation of good habits. Man, it has been said, is a bundle of habits, and habit is second nature. I think that in some measure happiness itself may become habitual. There is a habit of looking at the bright side of things. Dr. Johnson said that looking at the best side of a thing was worth more to a man than a thousand pounds a year. In this way the habit of happy thought may be made to spring up like any other habit. And to bring up men and women with a genial nature, a good temper and happy frame of mind, is perhaps of even more importance in many cases than to perfect them in much knowledge and many accomplishments.

There is a truthfulness in action as well as words. That boy was well trained who, when asked why he did not pocket some pears, for nobody was there to see him, replied: "Yes there was; I was there to see myself, and I don't intend ever to see myself do a dishonest thing."

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One of the most remarkable tests of character is the manner in which we conduct ourselves toward others. A graceful behavior toward superiors, inferiors and equals, is a pleasure to others, and more especially to ourselves. There is a way of speaking a kind word, or of doing a kind thing, which greatly adds to their value. Then let us be kind, and seek the high objects of this life, form a true character, and work out the best development of body and spirit, of mind, of conscience, heart and soul. Money is power after its sort, it is true; but intelligence and moral worth are powers too, and far nobler ones.

At the conclusion of the essay President Bulla and Major W. L. John complimented it highly, and on motion it was ordered to be printed with the minutes.

PRESIDENT'S ADDRESS.

From the proceedings of the annual meeting, of the twelfth of January, 1878, closing the labors of the year, we submit the following able address of President Bulla:

To the Richmond Horticultural Society:

LADIES AND GENTLEMEN: We enter upon the labors of another year, trusting in Him who is able to guard and guide us, and who "sendeth rain on the just and the unjust," and "who hath left not Himself without witness in that He did good, and gave us rain from heaven, and fruitful seasons, filling our hearts with food and gladness."

We were evidently placed in this world that we might become, to a certain extent, the creators and conservators of our own individual happiness and well-being. The first man was given a home in the primitive garden, not for the purpose of finding there a life of ease and inactivity, but rather that the garden might be dressed and cultivated by his intelligent and industrious toil. Labor was to be one of the prime sources of his felicity. And even after his expulsion, if labor was made a part of his punishment, it was still one of the means which enhanced the comforts and satisfactions of his daily life; for it was as true, probably, then as at a later day, that in all labor there is profit.

Our relations to this world seem in every respect entirely natural. Our senses, all our powers and faculties, both of body and mind, find here the proper field for exercise, and the proper incentives to improvement. Even our religious instincts are here furnished with their first opportunities of development, and are taught the reality of diviner objects around which to gather in a higher sphere.

The feeling is intuitive with us that our destiny here is one of toil.

"Man is born to labor." So, too, we have an innate sense of responsibility, of duty, of obligation; and the innate conviction that man can only secure his well-being by effort, by thought, action, labor,—that he is himself to master the difficulties which hedge in his interests, and surmount the obstacles which interpose between him and the happiness he craves. The general charge to be brought against society is, not that individuals are idle and indolent, but it is that their activities are misdirected; that they too often mistake their real interests, and labor so earnestly for mistaken ends; that they become oppressed with unavailing anxieties, and suffer themselves to be overburdened with the perplexities of life. Agriculture and horticulture to-day have no rivals in the world. Men and governments are dependent upon agriculture. A failure of the crops of Europe, while it would cause a wail of sorrow and of death to come up from many people, would drive despots from their thrones, and shake the foundations of every monarchy.

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It has been said that "cotton is king." It may be said with greater truth that sugar and cotton, corn and wheat, cattle and hogs, hay, potatoes, apples, and the hundreds of other products of agriculture and horticulture together, is king, before whom all men and all things must bow. When agriculture prospers the whole people rejoice.

We, to-day, rejoice in the exhibition of our common industry. We see around us the physical results of our pursuits.

We are taught the brotherhood of labor and the fellowship of man, in the manufactured articles around us. Whilst the agriculturist urges the plow and gathers the harvest in the open air, amid the green fields and in the bright sunshine, producing "seed for the sower and bread for the eaters," his brother, the mechanic, shut out from these blessed influences, in the shop and at the forge, still forgets us not, but in every work fixes his mind upon our wants, and produces from day to day these beautiful contrivances for our convenience and profit, while wives and daughters, mothers and sisters, display before us those splendid flowers and fruits, and these products of quiet and successful home work, which we all experience and enjoy daily, and without which life would be a hapless struggle, and our success but empty victories.

How proud, my fellow-workers, should we be, that we are permitted, in this world of activity, to labor, and in this world of beauty to look over the green fields, the golden harvest, the orchard, the meadows, and all the graces and beauties about us, and say our hands have added somewhat to them. Let no man despise labor; rather let him accept it, and love that God, who, while He has declared it as the law of life, shows that He approves it by granting to it so much of happiness.

But, my friends, we must not forget that while labor cheers us, and the proud results of our labor are so pleasant to see and so gratifying to possess, that these are not the end of life—that they are only the means of life; and that out of all this success and wealth we are called upon to perfect the inner and higher life. A greater than man has said that "man shall not live by bread alone," and experience approves the divine announcement.

OUR HORTICULTURAL SOCIETY.

We may have had some discouragements, as all societies have, and we may have sometimes questioned our success, yet if we but glance over the years that have passed since this association was first organized, I believe we may congratulate ourselves upon what we have accomplished, and that in no other county in the State have better results been achieved.

Our success has been shown in the general interest awakened in horticultural affairs—in the demonstrations of the capabilities of our soil, in the increased investment of capital and labor, in the results already attained, as well as in the grand promise in future returns from the various departments of fruit culture,—from the more extensive areas recently planted.

Then, too, we have been interested in the intelligent discussions of all those questions which pertain to practical or to scientific horticulture, such as the preparation of soils, drainage and sub-soiling, manuring and cultivation. Such, too, as planting and pruning, heading and trimming; such also as climate and soil, altitudes and exposure, winter killing, frost, rot, blight, mildew, borers, curculio, apple moths, potato bugs and cabbage worms; such, too, as grafting, budding, forcing by hybridizing, transplanting, gathering and packing and keeping fruit, transporting, marketing, and many other questions which meet us on every hand, inviting our intelligent discussion, and challenging our mastery.

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And right here in these discussions, these relations of experience and comparison of views, and free and informal consultations—right here the supreme benefit of our association is vitalized. This is practical schooling, practical education, which enables us each to entertain for himself or herself, and be able to present to others intelligent views and opinions on all these subjects, and to test and apply and illustrate the opinions and theories and principles upon which they are built, in our every day or at least our every year work. This education is the substitute we have for the old plan for going it blind on the Dutch almanac, and planting in the moon, and a very good substitute it is. I know there are some who prefer the good old way their fathers trod, and I have no quarrel with them whatever. With all the old fogy ideas that hold, as with an iron grip, the advancement of a large number of horticulturists, we have made great progress in apple culture, in improved kinds and culture of many of the small fruits. But perhaps the triumphs of modern horticnlture are more general and remarkable in the vineyard than in the orchard, especially in this western country.

The fact that very few of the foreign grapes were found to succeed in our American soil and climate retarded greatly, in this country, the cultivation of the vine. During the present century, however, and largely within the last thirty years, attention has been called to the excellence of a number of our American grapes. These grapes have been very generally disseminated throughout the country, and the grape-growing interest is to-day assuming no inconsiderable magnitude.

There is being carried on all over our country, especially in the Western States, a great practical horticultural school of experiment and comparison of facts, and discussions of theories and analysis of soils, and production of new varieties, which must all result in advanced and intelligent horticultural enterprise.

In every department of our work there is a growing interest and a marked advancement.

Very respectfully,

J. M. BULLA.

REPORT OF THE PLAINFIELD HORTICULTURAL SOCIETY.

To the Indiana Horticultural Society:

This Society has held six meetings this year, all on the picnic plan, at the members' houses. Some of these meetings have been the most interesting of any in the history of the Society. The past season has been very unfavorable for fruit growing in this vicinity. The freeze last spring killed nearly all the bloom, although we raised enough of apples for home consumption, but rotting badly. Pears, blooming earlier than apples, were all killed by the frost. Cherries all killed; strawberries, first bloom killed, but continued to bloom and had a fair crop; raspberries, a good crop; blackberries, a failure; vegetables of all kinds in abundance.

This Society holds exhibitions, at each meeting, of fruits and vegetables, all in their proper season.

The officers are as follows: President, D. W. Davis; Vice President, A. Alderson; Secretary, Daniel Cox; Treasurer, Mrs. Eunice Palmer.

To show some of the workings of this Society, the following essays will be sent in with this report.

DANIEL COX,
Secretary.

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WINTER QUARTERS.

A Paper Read by David Wilson, of Monrovia, Ind., before the Plainfield Agricultural and Horticultural Society, October 13, 1877.

LADIES AND GENTLEMEN: After thanking the Society for the honor conferred by an election to an honorary membership, I will proceed to the discussion of the subject assigned me by remarking that "going into winter quarters" is a subject with which soldiers especially ought to be quite familiar, for they have discussed it and heard it discussed from almost every conceivable standpoint. To them the very thought of "winter quarters" came heavily laden with comfortable suggestions of probable furloughs, and happy reunions with loved ones at home. And yet how often were they doomed to bitter disappointment! and few ever realized the soldier's dream of winter quarters.

By way of digression, may I be permitted to recount for a moment my experience as a soldier, with reference to the subject under discussion. We had finished the song in which the poet so beautifully sings of the "Girl I left behind me." And after a short campaign in Missouri and a brilliant dash on Belmont, we quietly settled down, in the early autumn of 1861, in a beautiful camp, studded with an occasional oak, on the banks of the placid Ohio. And when, late in October and early in November, the leaves began to turn brown and fall to the ground, it began to be noised through the camp, "We are going to winter here," and orders were promulgated to prepare "winter quarters." The oaks that had so kindly protected us from the scorching rays of a summer sun, and the iron that had formerly done duty in a rolling-mill, were soon shaped into cabins and furnaces. Many were the letters to friends at home that described the beautiful and comfortable winter quarters of the army of General Grant. Early in February, when we took boats on the Tennessee, he laughingly said: "We are going on an excursion, and will be back again in a few days to spend the winter in our comfortable cabins." But those few days lengthened into weeks, and instead of returning we found ourselves bivouacked, without blankets, on the field of battle, with the mercury at 20° below freezing. Donaldson had been fought and won, and, we thought, we shall certainly soon return; but again duty called us on, and the entire winter was spent in the field. It was not until one morning in April, surrounded by the debris of the "bloody field of Shiloh," when less than one-half of the boys who boarded the Tennessee steamers answered to the "roll-call," that we fully comprehended that a soldier's winter quarters are found only on "death's eternal camping ground." And thus it was ever. When the soldier had the greatest reason to think the campaign ended, he was the most certainly mistaken.

I sometimes say—and it does seem so to me—that there is considerable similarity existing between the soldier and the husbandman, and that the *rest* implied in the term winter quarters is never realized by either. For with the husbandman the duties of to-day, like those of the matron, must again be performed to-morrow, and both, like the obedient horse on the tread-wheel, are continually at work, yet the task is never finished. And, again, the season most favorable for the operations of the soldier is the one that the husbandman must improve if he would succeed. And a similarity may be further discovered when it is considered that much of the success of the producer depends upon his ability to transpose himself into a quartermaster.

The conditions necessary to insure success for an army are not alone found in the courage and discipline of the common soldier, or the brilliant dash of epauletted

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officers, but, to some extent at least, in the wisdom and foresight of those whose duty it is to provide for the physical wants of the army. The success of the husbandman depends too, not alone upon the amount of his produce, but to some extent upon his ability to care for it at the proper time, and to safely house it in winter, and preserve it until an equivalent can be obtained for it in the markets.

But, Mr. President, I am advised that going into winter quarters, from an agricultural or horticultural standpoint, means the proper time to gather in and store away the crops that have been produced during the season, the care of stock, and other kindred matters connected therewith, and that a rational treatment of the subject would properly include such suggestions on those subjects as the writer might be able to make, or deem of importance to those engaged in those occupations. Hence it is the province of your essayist to treat this subject as hinted at. The great and overshadowing importance of this subject suggests that it should have been given to some one of large experience and undoubted ability, because every producer is directly interested in the subjects discussed. Certainly, as to experience or ability, your essayist falls far short of the requirement. As an agriculturist, my experience is limited. As a horticulturist, my lines have been cast generally with communities who, early in the history of our State, took active steps to introduce and foster it, but are to-day sadly in the background as to that practical knowledge so necessary to insure success in that business. But certainly one should be considered quite dumb if, after passing the meridian of life, no valuable lessons had been learned. There is, I believe, no respectable business, trade or profession that will not support with respectability the one who rationally follows it, if common prudence and foresight are exercised.

But there are times—and perhaps we are experiencing one of them now—when it becomes absolutely necessary, for the husbandman at least, to guard well every avenue that has a tendency to divert his resources. Certainly agriculturists are compelled, by stern necessity, to cut down every unnecessary expense. An immense field for this character of pruning may be found in the care we take of our machinery. How many new reapers might have been dispensed with if the old one had been properly cared for in due season. Almost every day, when passing through the country, I see the machinery of the farmer standing where last used, a monument that records the almost universal negligence of the agriculturist. It may not be the case where that light which is the result of organizations like this infuses life and energy into the people. But there are many such places; and in such places I would commence the operation of going into "winter quarters" by safely housing all tools and implements so soon as their constant use could be dispensed with. And if attention should be given to this one suggestion, I am sure an immense outlay would be unnecessary.

I do not believe that a general rule for autumn work can be laid down that will obviate occasional changes. Hence, I have only to say to the man who raises corn, gather it in so soon as certainly ripe and dry, and under no circumstances delay such work until the inclemency of the weather forbids it. Sweet potatoes are a source of considerable revenue, and are grown to some extent with my neighbors, and are housed from the first to the twentieth of October, in warm, dry and somewhat dark cellars; but little difficulty is experienced in keeping them until harvest. Irish potatoes and vegetables generally are not largely grown with us, and I will close this branch of my subject by simply saying that on the great questions involved as to the proper time and best mode of disposing of them for winter, I generally consult my wife, and her conclusions are adopted with great unanimity.

The care of live stock to the agriculturist is one of considerable importance, and

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yet it seems almost unnecessary to speak of it in a community of intelligent men and women, for the better judgment of every one will suggest that stock, like mankind, to be healthful and vigorous, must be suitably protected from the wintry blast. Hence, prudent and intelligent farmers will not fail to provide ample shelter for all live stock. It seems to me that the duty of the essayist, so far as this subject is concerned, is simply to raise a warning voice against procrastination. The remarks just made were intended to apply to horses and cattle. And now what shall we say about hogs? More money is probably realized by the farmers of Indiana from the sale of hogs than from any other source, and the indications are that disease, unless speedily checked, will compel farmers to entirely abandon this great source of revenue. As intelligent men may we not, then, inquire if the "quarters" assigned to them during winter may not be the means of propagating cholera? I am convinced that it is not improbable, and yet I do not care to suggest a remedy. Of one thing I am certain, that clean quarters are not necessary if our object be to produce disease.

It would be presumptuous for me to attempt to discuss questions connected with horticulture with men engaged in that business, and who have won for themselves enviable reputations. I would much prefer to hear and learn from them a few of the invaluable facts that years of experience and observation have placed in their possession. From my own observation I am convinced that a large amount of fruit is lost each year from late gathering. This is said, however, more to provoke discussion than for the purpose of presenting the idea, for I am advised that some varieties should be gathered later than others. Cellars are generally used with us for storage of apples, and give satisfaction.

Now, Mr. President, my object in what I have written has not been to advance any new idea or theory, but to cause some discussion on the questions mentioned. If I have done this I am certain we shall all learn something that will be of advantage to us.

I am not favorably inclined to the adoption of any specific rules by which we shall be governed when going into "winter quarters." Some one has said that a belief in "specialities is always in proportion to the ignorance of the people." I do not know how that is, but I do know that many special solutions of problems and difficulties fail in the realms of the wise as well as the ignorant. It is said that in the interior of Africa a certain tribe believe that death is caused by witches, and that if they could be destroyed the grim monster could be averted. Yet death comes to all, regardless of the fact whether there be a witch. It is said that in England "strikes and labor leagues" were first organized to relieve the deplorable condition of the peasantry of that realm. The results were that it drove capital from the active industries and manufactories and put it in bonds, and hence lowered the price of labor by destroying competition.

France also experimented with many special cures for her national ills. One thought that they were all attributable to the abandonment of agriculture, and proposed as a remedy that none should vote unless he could establish that he was the owner of so many sheep. Another proposed the reorganization of society, and that, if his plans were adopted, there would be such mental development that men would live two or three centuries, and that poets as great as Homer, philosophers like Milton, and dramatists equal to Moliere would be quite common. And yet men are short-lived, and only one Homer has lived. Wisconsin passed her "Potter law," and it was said that it would forever throttle the mischievous machinations of the railroad monopolies, and release the farmers from their iron grasp. Result, it destroyed values, and the farmer yet pays his freight as of yore. The temper-

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ance men caught the infection, and declared that with a "Maine law" they could absolutely prevent drunkenness. But it is estimated that sixty thousand drunkards die annually.

Hence, we see that in politics, in morals, and in the formation of society, specifics have failed, and may we not reasonably conclude that in the preparation of the products of the soil for preservation through the winter a willing hand and common sense will answer a far better purpose than a blind belief in specific rules. I would not, however, be understood as undervaluing the rules that experience has proved to be valuable. In conclusion, I will only say, investigate the conditions necessary to protect and preserve the rewards of your labor, to which add a willing hand, and prosperity will follow; reverse it, and adversity is inevitable.

THE STRAWBERRY.

An Essay read before the Plainfield Horticultural and Agricultural Society, June 8, 1877, *by W. H. Ragan.*

Botanically, the strawberry belongs to the natural order *rasacæ*, to which also belongs most all our edible fruits. The species to which it belongs (*fragraria*) is indigeneous to both hemispheres. There are three European and two American species represented in our list of cultivated varieties, though those of greatest value belong mainly to the North American species (*fragraria Virginiana.*) The Hautbois, Alpines and the Green strawberries, representing the three European species that have been more or less cultivated in this country, have only proven themselves of value in a few isolated instances, under special treatment and in certain soils. The amateur, with means and leisure, may experiment with them in the hope of being rewarded for his pains by a few luscious specimens; but to the practical cultivator, who is better content with a bountiful harvest than with exquisite quality in infinitesimal quantities, I would recommend the American species only. The two American species—the one indigenous to North America, the other of South America—hybridize freely; and thus, from long interculture, have become so intermixed as to even defy the expert to trace with absolute certainty the origin of the variety as belonging more especially to the one or the other. As a rule, *fragraria Chillionensis* is less acid and of larger average size, though perhaps less hardy in plant, and not so fruitful as *fragraria Virginiana.*

VARIETIES.

Strawberry culture might be regarded as yet in its infancy in this country, forty years covering as it does almost the entire period in which particular attention has been directed to the growth of this healthy and delicious fruit, though the catalogues of our cultivated varieties have already developed into huge proportions. It will not be my purpose, in this paper, to speak of any particular variety or varieties as possessing special merit, knowing as I do that each has an advocate in special localities and under special treatment. For this particular locality, however, I could name one, though I deem it unnecessary, as the name will doubtless suggest itself to all, that in its intrinsic value stands pre-eminently the peer of any. Of one fact, however, I have taken notice, and I would impress this observation upon the minds of all as a warning, not alone as regards the strawberry, but as relating in general to the introduction of new fruits, that those making their debut amongst us under high sounding names, and especially when stimulated by high prices, and in the hands of energetic agents, are by no means the only ones that succeed, but like the

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Concord grape or Wilson's Albany strawberry, we often find universal favorites, that not unlike the *still small voice* of old, are recognized above the din and tumult of the "tempest and the whirlwind."

PLANTING AND CULTURE.

No product of the soil responds more promptly to, or is more susceptible of a high state of culture, than the strawberry, notwithstanding we often have paying crops under great neglect. A soil in which clay predominates may, perhaps, be regarded as best adapted to the growth of the strawberry; at least, we may anticipate less danger in such soil from that great pest of the strawberry grower, the white grub, and also from drouth, than may be expected in a light, loose soil. The ground should be thoroughly prepared before planting, which operation should always be performed in early spring. The plants may, however, be dug in the fall, prepared by cleaning up ready for planting, heeled in in close order in a bed, and protected by a light mulching against damage from frost, where they are to remain until called for in April, or at most, early in May. Plants prepared in this way are much superior to those dug in the spring, besides possessing the additional merit of being ready prepared for planting when called for—no small consideration when our spring work presses us. Plants may be taken up, if to be treated in this way, at any time from early September until cold weather sets in; the earlier, however, the better, as they will then form young roots before cold, freezing weather sets in. The mulching should not be placed upon them until growth is entirely suspended by cold, as there will be danger of smothering from too early an application. The manner of planting will depend largely upon the system of culture to be adopted. For the garden, where most if not all the labor of cultivation will be performed by hand, two feet by two will be a convenient distance apart to set the plants; in the field, where horse and cultivator will be made subservient to our wishes, three feet by two will be more convenient. My best success has been from hill culture, though the matted row system may be best adapted to general use. If hill culture is attempted, all runners should be kept off for the first season, cultivating the ground frequently so as to insure a vigorous growth of plant; if the matted row system be adopted, run the cultivator one way, keeping down all weeds, but allowing the plants to set lengthwise of the row, thus forming ribbons of plants, alternating with strips of cultivated ground.

As winter approaches, and after growth is entirely suspended, (and not before,) apply a mulching of straw so as to hide the entire surface of the ground, allowing it to remain undisturbed until spring, when it should be removed from immediately over the plant by shoving to one side. The plant grows up through this opening, forming its fruit and foliage above the carpet or mulching of straw, which remains without further disturbance, keeping the ground cool and moist, and the fruit free from dirt.

This season we will have our best crop of fruit. The only culture necessary during this year will be to remove by hand such weeds as may force their way through the mulching. In the fall give an additional layer of straw, treating as before in the spring and summer following. The crop of fruit this year may exceed in quantity that of the previous season, but will most probably be of an inferior quality.

The next year, which will be the third from planting, will probably give a paying crop of fruit, after which the bed—including old mulching, plants and all—should be turned under, from which a crop of turnips may be grown, and the land thoroughly prepared by the next spring for a new plantation of strawberries. Thus,

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by planting one-third of our ground annually, we may be enabled to keep up a succession regularly of one-third of our ground in the various stages of first, second and third conditions of growth. I omitted in the proper place to say that it will scarcely be necessary to renew the mulching for the last winter, inasmuch as we do not expect a paying crop the third year.

YIELD PER ACRE.

By actual measurement, I have gathered from an acre of plants treated as above directed, on various occasions, from one hundred to one hundred and fifty bushels of fruit. In one instance a bed measuring 60 by 70 feet yielded 19 bushels, and in another case a bed 15 by 21 feet gave three bushels of berries.

Yet we would not stimulate the novice to anticipate such results, lest he meet with bitter disappointment, since in horticultural matters, as in various other branches of industry,

"There's many a slip 'twixt the cup and the lip."

HISTORICAL SKETCH OF THE PLAINFIELD HORTICULTURAL AND AGRICULTURAL SOCIETY.

An Essay read by Charles Lowder, at a meeting held at "Crescent Hill," September 1, 1877

In January, 1861, a few of the enterprising fruit growers of the State of Indiana met at Indianapolis, and organized the Indiana Pomological Society, with a constitution providing for biennial meetings to be held at the city of Indianapolis. At the next regular meeting of that Society, held in January, 1863, provision was made, by an alteration in the constitution, for the holding of annual sessions, and even for called meetings by the *ad interim* committee. The influence of this meeting was felt in the vicinity of Plainfield, and on the twenty-first day of the following November a few of those engaged in horticulture met for the purpose of considering the propriety of organizing a home or local society. The deliberations were harmonious, and resulted in appointing Solomon Blair, Jesse White, Charles Lowder, Ira Middleton and David J. McMills a committee to prepare, and produce to a meeting to be held on the sixteenth of next month, a constitution and by-laws for the government of the proposed society. Ellis Lawrence was chairman of this meeting, and Seth W. Pearson was secretary, but the minutes do not show the number of persons present.

At the next meeting, held December 16, 1863, the committee reported a preamble, constitution and by-laws, which were carefully read, considered and adopted, and the organization of the Plainfield Horticultural Society was completed.

PREAMBLE.

For the purpose of mutual improvement, and to create an increased interest in horticulture and its kindred branches, we, whose names are hereunto appended, hereby organize ourselves into a society to be known as the "Plainfield Horticultural Society," and hereby adopt the following constitution for the government of the same:

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CONSTITUTION.

ARTICLE 1. The officers of the Society shall consist of a President, Vice President, Secretary and Treasurer, who shall hold their offices for the term of one year, or until their successors are elected.

ART. 2. The President shall preside at all the meetings of the Society and perform all duties usually pertaining to such officer; and in the absence of the President, the Vice President shall act in his stead.

ART. 3. The Secretary shall keep a record of all the proceedings of the Society, together with a brief summary of the articles exhibited before the Society, and also a brief summary of the discussions upon all questions of interest, and conduct the correspondence of the Society, and such other duties as may be assigned him.

ART. 4. The Treasurer shall receive and pay out, on order of the Society, all moneys belonging thereto.

ART. 5. Members may be admitted at any regular meeting of the Society, by a vote of two-thirds of the members present, and who shall pay into the treasury the sum of one dollar as an initiation fee.

ART. 6. The Society may admit as honorary members any person well known as devoted and interested in the vocation of horticulture, who does not reside convenient to attend all the regular meetings of the Society, and such honorary members may engage in all the discussions of the Society, but shall have no vote in its transactions.

ART. 7. Five members shall constitute a quorum for the transaction of business.

ART. 8. The regular meetings of this Society shall be held in Plainfield, at 2 o'clock P. M., on the third Seventhday of each month, unless otherwise ordered by a vote of the Society.

BY-LAWS.

ARTICLE 1. At each regular meeting of the Society some one shall be appointed to read a paper or deliver an address at the succeeding meeting on some subject connected with horticulture, which subject may be taken up and discussed by the members.

ART. 2. Any member failing to attend the regular meetings of the Society shall be fined in the sum of twenty-five cents, unless excused by the Society.

ART. 3. In all discussions in the Society no member shall speak more than once on the same subject, until all others shall have had an opportunity to speak.

ART. 4. Each member shall bring at each meeting such articles for exhibition as he may deem to be of interest.

The minutes of this meeting, held December 16, 1863, do not show the transaction of any other business than the adoption of the constitution, etc., as above, and the election of officers for the ensuing year, as follows: President, Charles Lowder; Vice President, Hudson Middleton; Secretary, Seth W. Pearson; Treasurer, Solomon Blair. Although it is made the duty of the secretary by the constitution to keep a record of the proceedings of the Society, yet they do not show the number or names of members during the first two years, only as their names appear in the discussions of subjects at the several meetings.

At the meeting in January, 1864, apples were on exhibition by Jesse White, William C. Kean and James Dicker, and Clinton grapes in a fine state of preservation by Adam Jones. Jesse White was appointed to read an essay at the next meeting on the "Best Time and Method of Pruning and Trimming Fruit Trees." The record of the next meeting shows that the essay was read, and that it called forth

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some lively discussion from the members, but does not give the names of any except of Adam Jones and James Dicker. The essay is not on record.

At the meeting for March, Charles Lowder read an essay on "Winter Apples," which is on the record in full, and James Dicker delivered an address on the "Best Time and Manner of Planting Trees." The essay and address both called forth some lively discussion.

At the meeting for April, Adam Jones read an essay on the "Cultivation of the Grape," which was discussed by Solomon Blair, Hudson Middleton, John Nicholson and others. Thirteen varieties of winter apples were on exhibition at this meeting. A committee, consisting of Solomon Blair, Seth W. Pearson and James Dicker, was appointed to considered the propriety of holding a summer exhibition of horticultural products, and if thought advisable to prepare and produce to next meeting a premium list and rules for the government of the exhibition.

At the meeting for May, the committee on the exhibition reported favorably, and the eleventh of June set for the time of the exhibition, but the record does not give the list of premiums either offered or awarded, nor the names of the exhibitors. The same members were continued, with the addition of Jesse Snipes and Ellis Lawrence, a committee of arrangements, and to make full report to a future meeting. Solomon Blair read an essay on the "Cultivation of the Strawberry." The essay is not on record. At this meeting the secretary reported that he had received from the Agricultural Department at Washington, for the use of the Society, 104 packages of garden seeds, 40 packages of flower seeds, and 11 volumes of Agricultural Reports. The seeds and books were divided among the members present.

At the meeting held on the eighteenth of June, the committee on the subject of the exhibition made a report, showing the gross receipts of the fair and entertainment to be $174.65, and that the expenses of the same had been $74.90, making a clear profit of $99.75. By order of that meeting $92 of said profits were equally divided between the Sanitary Commission and Freedmen's Aid Society, and paid to the proper authorities. At this meeting a resolution was adopted tendering a vote of thanks to a committee of ladies for voluntary services rendered in preparing for said exhibition and entertainment. The fair was held in the Seminary Building, now the Town Hall, in Plainfield. The Society must have received much encouragement from the success of this fair, as would appear from the following resolution, which was unanimously adopted at the June meeting. The committee spoken of was appointed.

Resolved, That a committee of three be appointed, who shall consider the propriety of purchasing a suitable lot of ground for the use of this Society, and also ascertain when such lot can be had, and at what cost, and what amount can be raised by subscription, etc., and report on the same to next meeting.

At the meeting for July, ten members only were present. The committee appointed at last meeting on the grounds, made report as follows, to-wit: 1. That we highly recommend to the Society to procure ten acres of ground to be used as a sample garden and orchard. 2. That the most suitable lot of ground within the vicinity of Plainfield belongs to David Carter. 3. That your committee have not yet learned whether said ground can be purchased at a price that would be considered reasonable or not. 4. We have yet made no effort to ascertain what amount could be contributed for the purchase of such ground. After some discussion the whole matter was referred back to the same committee to report to a future meeting. Seth W. Pearson read a short essay on the "Effect of the January Freeze on Fruit Trees," and Ellis Lawrence read one on "Vegetation and Its Manner of Growing." These were discussed by Dr. Allen Furnas, Messrs. Blair, Dicker and White. Neither of these essays are on record.

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At the meeting for August, Dr. Allen Furnas read a sound and well written essay on the "Dignity of Horticultural Labor," which is worthy of a reprint for the perusal of some horticulturists as well as for many of other professions. The essay is on record. At this meeting a premium list was prepared for the fall exhibition to be held at the Seminary Building, on the first day of October. It was divided into four classes: 1. Fruits. 2. Garden products. 3. Field products. 4. Preserved Fruits. Ellis Lawrence, Asa J. Martin, James Dicker, Adam Jones and Hudson Middleton were appointed a committee of arrangements. The premium list, with the names of the awarding committees chosen, are on record.

At the annual meeting held December 17, 1864, a change was made in the constitution, providing for two Vice-Presidents, instead of one; for a Corresponding and a Recording Secretary, and a Librarian, and for the appointment of an executive committee of three members, and defining the duties of each. The officers chosen at this meeting were: President, Hudson Middleton; Vice-Presidents, Adam Jones and Asa J. Martin; Recording Secretary, Ellis Lawrence; Corresponding Secretary, S. W. Pearson; Treasurer, Solomon Blair; Librarian, James Dicker. A delegation was appointed at this meeting to attend the next meeting of the Indiana Horticultural Society, to be held at Indianapolis, consisting of Adam Jones, James Dicker, Seth W. Pearson, John Nicholson and Charles Lowder.

Having followed the Society pretty closely through the first year of its existence, and given some account of the number and nature of subjects examined and discussed by it, I shall now give only a short outline of some of its most interesting labors in subsequent years.

At the meeting for February, 1865, the question was innocently asked by an interested member, "At what height shall I start the heads of my young apple trees so that they may be about three feet high when twelve or fifteen years old?" A knowing horticulturist, who would have been generally taken as good authority, promptly answered, "Three feet." The question was restated and the answer given the same as before. This was the commencement of a spirited and protracted debate, some holding that the point on the body of a tree at which a limb started never became higher from the ground in after years than when first started; others knew to a "dead certainty" that such was not the case, and that they could demonstrate to a certainty that given points on the bodies of trees would be thrown further apart as the tree advanced in size and age. It was so plain. The tall oaks and hickory, and all the timber of the forest, were absolute proof of the elongation of woody fibre. Others knowingly showed how wood growth was made, and that when woody fibre was once fixed, it was "there." And so went the debate, month after month; a few joining the Society and paying the initiation fee for the privilege of joining in the controversy. Finally, a good spirit came to our relief, and induced one of our members to kindly suggest that the subject be referred to acknowledged good authority, viz: Reuben Ragan, of Putnam county, and John J. Thomas, editor of the horticultural department of the *Country Gentleman*. The proposition was satisfactory, and Dr. Allen Furnas was deputed to conduct the correspondence. At the next meeting the doctor produced a written reply from friend Ragan, stating that there was "no provision in nature for the elongation of woody fibre." This was a high day with some who had engaged in the debate. No reply from Thomas. At the next meeting the *Country Gentleman* was at hand and the question answered to the contrary, and good botanical authorities cited in evidence of the theory of elongation. The excitement among the members at this meeting was reversed. The scale was turned. "When doctors disagree, who shall be able to decide?" The subject has not been discussed since. I might say that few if any of the old members of the Society now hold to the elongation theory.

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Two exhibitions were made again in this year, one on the tenth of June, and the other on the twenty-third of September. There is no record of either of these exhibitions further than a mere statement that the exhibitions were held under the direction of special committees, and that the gross receipts of the two fairs and entertainments was $127.21, and that the expenses for premiums and other incidentals was $110.39, making a clear profit of $16.82.

This year the Society made an exhibition of one collection of fifteen varieties of apples at the State Fair at Fort Wayne, and obtained the first premium on the same, five other lots competing.

The officers elected for the year 1866 were, John Nicholson, President; James Dicker and Lindsay Jessup, Vice Presidents; William C. Kern, Recording Secretary; Seth W. Pearson, Corresponding Secretary; Solomon Blair, Treasurer; Amos Alderson, Librarian, and the Executive Committee, Charles Lowder, James Dicker and Jesse White. The records show the number of members this year to be forty. The Society was favored again this year with a large donation of valuable flower and vegetable seeds from the Agricultural Department at Washington; all were divided among its members.

At the April meeting this year one of the members distributed in the Society a few ears of popcorn, with a request that each member plant in good ground, tend well and report the result. At the meeting in August next it was unanimously agreed to offer at the fall exhibition a premium of fifty cents for the best half dozen stalks of popcorn, each member being confident that he would be the lucky man. If I remember right, the six stalks to which the award was made bore 74 well developed ears—one stalk having as high as 15. The usual summer exhibition was held this year.

There is a pretty full account of the June exhibition and entertaiment held this year, including premium list and a list of all the awards made. If I remember right, it was at this fair that one Wilson Albany strawberry plant was exhibited in a pot, by William A. Ragan, of Clayton, bearing 360 berries, after a large number had been picked off. This plant, together with the exhibition in general, had a good effect upon a number of our members and neighbors in stimulating them to plant more largely of this delicious fruit.

In this year the Society offered a premium of ten dollars for the best cultivated and trained apple orchard, of not less than one hundred trees, the orchard to be not less than three nor more than ten years old; and also a premium of five dollars for the second best. They also offered similar premiums on fruit lots and gardens, and appointed an examining and awarding committee on each subject. These committees both made full and interesting written reports to the meeting of March, 1867. Both reports were printed in the county paper, and are preserved in the Society's record. The first premium was awarded on apple orchards to Charles Lowder, and the second to Hudson Middleton. On fruit lots, the first premium was awarded to Solomon Blair, and the second to Jesse Snipes.

At the meeting for December this year, Charles Lowder, Amos Alderson, Seth W. Pearson, John Nicholson and Jesse White were appointed delegates to the Indiana Horticultural Society, and to make an exhibition of apples at the same. At a meeting of the Society held in January, next year, a report was made on behalf of said committee that they made an exhibition of fifteen varieties of apples, as instructed, and was awarded the first prize of $10 offered by the Marion County Agricultural Society.

The records of the Society show that in the fourth year of its existence, 1867, it had lost none of its former interest. It held only one fair this year, that on the fifteenth of June; offered the same premiums this year on orchards and on fruit

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lots and gardens as last year. Full written reports were made by the awarding committees on the same. Hudson Middleton received first premium and Charles Lowder second on orchards; Solomon Blair first on fruit lots, and Dr. Isaac Furnas second. A committee appointed for the purpose made a well written report on insects and animals injurious to fruit trees, which report was read before the State Horticultural Society by Dr. Furnas.

At the December meeting in this year the Society adopted a list of fifty-six varieties of apples for the locality of Hendricks county. The record of the Society says: "We approve of this system of classification, and think it quite superior to the State Society's list on the 'Star System,' as the latter says nothing of the hardiness of the tree, productiveness or quality of fruit. An apple may be of first quality, as the American Golden Russet, and at the same time be of very little use for general cultivation, on account of defect in either tree or fruit, or perhaps both. The present list proposes to give *all* the essential information respecting quality of fruit, hardiness of tree, productiveness, etc., in order that tree planters may see at a glance just what variety succeeds best with us." The list referred to was published in the proceedings of the State Horticultural Society for 1868.

In the year 1868 the Society held twelve meetings, and discussed many subjects connected with horticulture. The "Wine Plant" (so called) mania was successfully combatted, and only a single member of the Society engaged in the cultivation of the common pie plant, under the spurious name of Wine Plant. Standing committees were appointed this year on the following subjects: Orchards, fruit gardens, vineyards, on small fruits, on vegetable and flower gardens, on entomology, and on ornithology.

At the May meeting the officers of the Hendricks County Agricultural Society and a number of other distinguished agriculturists and horticulturists were in attendance, and the day was well spent in the discussion of many subjects connected with their interests. Resolutions were adopted as follows: "That we appoint a committee to wait on our candidates for the Legislature, and ask them to pledge their aid and influence for the promotion of agriculture and horticulture, and that we demand of them that the appropriation made by Congress to establish an Agricultural College shall not be lost to the State, but that an Agricultural College shall be established and organized for the benefit of the agricultural producing classes; that we demand their influence in securing an appropriation necessary to publish the agricultural and horticultural reports of the State." Charles Lowder, Amos Alderson and Allen Furnas were appointed said committee.

At the November meeting this year a resolution was adopted, asking the Legislature to appropriate $500 to the State Horticultural Society, to be used in the publication of its annual proceedings.

In the year 1869, the Society held fourteen meetings, five of them at their rooms in Plainfield, and the other nine at the residences of its members, to-wit: one at Amos Alderson's, J. H. Nicholson's, Charles Lowder's, B. H. Wright's, Jesse White's, Ira Middleton's, Layton Hawkin's, Seth W. Pearson's and Elihu Cox's. It also held an exhibition of small fruits, flowers and early vegetables on the fifteenth of June.

In 1869 the State Horticultural Society offered first and second cash premiums on essays on the following subjects, to wit: on apples, on pears, on grapes, and on small fruits; each essay to fill not less than eight pages in the Transactions of Horticultural Reports, and to embrace in the discussion the soil best adapted to each kind of fruit, the preparation of soil, selection of trees, vines and plants, after culture and pruning. At the following annual meeting of the State Society eight essays were read on apples, three on pears, three on grapes and three on small fruits. Awards

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were made to *members* of the Plainfield Horticultural Society, *first* and *second* on apples, *first* on pears, *first* on grapes, and *second* on small fruits. These items are introduced to illustrate the good effects and practical teaching of the Plainfield Horticultural Society.

In the year 1870 the Society held thirteen meetings; most of them were held at the residence of its members, and the subjects discussed, as shown by its records, show that it had lost none of its interest so apparent heretofore.

In the year 1871 the Society held twelve meetings, three of them in June—one at Dr. Allen Furnas', one at Jesse White's, and one at John H. Nicholson's. Six valuable essays were read before the Society this year on the following subjects: on the Preparation of Hotbeds, on Growing Apples, on Potato Raising, on the Protection of Forest Timber, on Manures, and on Raising Sweet Potatoes. Each meeting was made lively by the discussion of interesting subjects.

Eight meetings were held in the year 1872, with nearly the usual amount of interest, as shown by the records.

Six meetings were held in 1873, and some very interesting essays read and much valuable discussion engaged in.

At the March meeting of the Society in 1874, the constitution was amended so as to include agriculture as well as horticulture in the subjects for discussion. Standing committees were appointed on orchards, on fruit lots and gardens, on entomology, on ornithology, on farms and their products, on live stock, and on poultry. These committees were instructed to make careful observations and report to each regular meeting of the society such facts as come under their notice that might be of interest to the Society at that time, and to make full written reports of all observations during the year to the December meeting of the Society. Essays were read this year upon several interesting subjects connected with stock growing and farming generally, as well as upon those connected more closely with horticulture.

In the year 1875 eleven meetings were held, one being omitted on account of a funeral, which was attended by most of our members. The meeting held on the eighteenth of June was attended by most of the officers of the State Horticultural Soceity, and other visitors from a distance, who took part in the discussions. This year the Society digressed a little from its usual course, and at the request of a distinguished member of the State Horticultural Society appointed and held a meeting at Irvington, east of Indianapolis. At this meeting the Society had the very acceptable company of our friend, Nicholas Ohmer, of Dayton, Ohio. His instructive lecture on the cultivation of small fruits, together with the hospitality shown us at the house and grounds of our friend, Sylvester Johnson, made this one of the most enjoyable meetings of the year.

At the February meeting in 1876, it was agreed to hold fewer meeting this year than heretofore. Seven other meetings were agreed upon, the times and places set, the subjects for discussion and the essayists for each day. For March 18, at Plainfield; the essayist for the day, Dr. Allen Furnas, on Setting Fruit Trees, and Dr. T. E. Ellis on Setting Hens. For May 20, at D. W. Davis'; essayist, Charles Lowder; subject, Grass. For June 27, at Monrovia; subject, Horticultural Influence, by Hon. W. H. Ragan, responded to by Elwood Stanton and others. For July 15, at W. A. Ragan's, at Clayton; regular order of business. For August 12, at Mrs. Reuben Ragan's, near Fillmore, Putnam county; subject, Horticultural Reminiscences, by Dr. Allen Furnas. For August 19, at John Morgan's; reports of various standing committees. For November 18, at Plainfield, to close up the labor for the year and make report to the State Horticultural Society. All these meetings were attended with unusual interest, and were times of much social enjoyment.

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In the year 1877, the Society held nine meetings; the first one at Plainfield, on February 17, at which time the following officers for the year were elected: President, D. W. Davis; Vice Presidents, Amos Alderson and W. H. Mills; Secretary, Daniel Cox; Treasurer, Mrs. Eunice Palmer; Executive Committee, Dr. Allen Furnas, Hon. W. H. Ragan and Mrs. W. A. Ragan. Twenty-six members enrolled.

A programme was also arranged, as heretofore, giving the time and place of each meeting for the year, the name of the essayist for each day, and the subject of the paper to be read. Though the number of members this year who have regularly attended the meetings, and taken part in the deliberations, has been less than in some former years, yet the interest manifested by a number of the members has shown no abatement. Most of the meetings of this Society have, for the last six years, been held at the residence of some of its members; a good picnic prepared by the members was enjoyed on each occasion by all present. The social influence of these meetings has been quite perceptible. All members of the family, father, mother, sons and daughters, have been alike interested, entertained and instructed. For more than fourteen years this Society has kept its organization complete and in good working order. No less than one hundred and fifty meetings have been held, and perhaps not less than one hundred valuable and instructive essays have been prepared and read by its members. Almost every conceivable subject connected with fruit growing of all kinds and farming and stock growing in general have been discussed by the Society. Many of those who were among its first members are not with us now. Some have removed to other fields of labor, and a few have been removed from our midst by the hand of death. Dr. Allen Furnas, Jesse White and Charles Lowder are all of the origianl members who have retained their connection until the present time. The Society has, as a rule, been unassuming, yet its proceedings and essays have been frequently published in the county papers and the agricultural papers of the State, and its proceedings have occasionally been highly eulogised by editors and correspondents who have attended its sessions.

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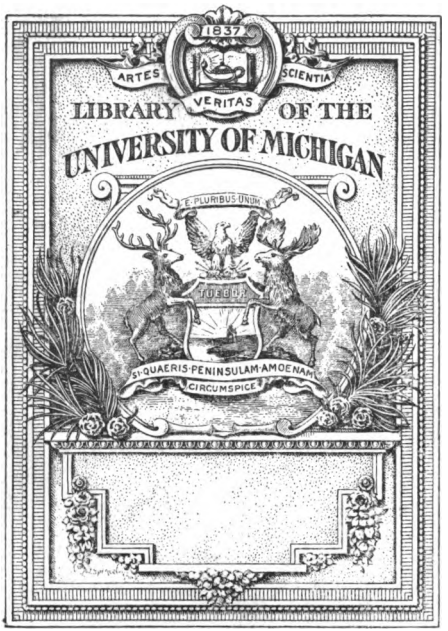

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